LABEL 000000000PRINTER00175098CC EXECUTE OBJECT/READ;FILE SOURCEFILE=SYMBOL/OLMAINT;END← OBJECT /READ

SYMBOL/OLMAINT

```
COMMENT    ONLINE/MAINT     REVISED FEB 1973        T.M.E. & M.J.G; %150100010000
  COMMENT: * TITLE: B5500/B5700 MARK XIV SYSTEM RELEASE                *     00010100
           * FILE ID: SYMBOL/OLMAINT  TAPE ID: SYMBOL2/FILE000         *     00010101
           * THIS MATERIAL IS PROPRIETARY TO BURROUGHS CORPORATION     *     00010102
           * AND IS NOT TO BE REPRODUCED, USED, OR DISCLOSED           *     00010103
           * EXCEPT IN ACCORDANCE WITH PROGRAM LICENSE OR UPON         *     00010104
           * WRITTEN AUTHORIZATION OF THE PATENT DIVISION OF           *     00010105
           * BURROUGHS CORPORATION, DETROIT, MICHIGAN 48232            *     00010106
           *                                                           *     00010107
           * COPYRIGHT (C) 1971, 1972 BURROUGHS CORPORATION            *     00010108
           *  AA320206   AA386657                                      *;    00010109
BEGIN                                                                          00020000
    COMMENT   PATCH LEVEL IN COMPILER HEADING AT 04170000******;               00021000
    COMMENT                                                                    00021005
                                                                               00021010
                                                                               00021015
        THIS PROGRAM HAS THE FOLLOWING BLOCK STRUCTURE:                        00021020
                                                                               00021025
            (SEQUENCE NUMBERS IN PARENTHESIS)                                  00021030
                                                                               00021035
        **BEGIN    (20000)                                                     00021040
        *                                                                      00021045
        * OUTER BLOCK DECLARATIONS                                             00021050
        *                                                                      00021055
        *----------                                                            00021060
        *                                                                      00021065
        * OUTER BLOCK CODE FOR FINDING INPUT FILE (5820000)                    00021070
        *                                                                      00021075
        * RETURN:          (6090000)                                           00021080
        *     **BEGIN      (6100000)                                           00021085
        *     *                                                                00021090
        *     * SCAN BLOCK DECLARATIONS                                        00021095
        *     *                                                                00021100
        *     *----------                                                      00021105
        *     * RETURN1:           (20910000)                                  00021110
        *     *                                                                00021115
        *     *     PROGRAM CONTROL CENTER                                     00021120
        *     * READIT:            (21080000)                                  00021125
        *     * R1:                (21100000)                                  00021130
        *     * CONTROL:           (21230000)                                  00021135
        *     * CONFIDENCE:        (21270000)                                  00021140
        *     * PERROR:            (21310000)                                  00021145
        *     * MCCLCOMPILER:      (21900000)                                  00021150
        *     *     **BEGIN        (21920000)                                  00021155
        *     *     *                                                          00021160
        *     *     * SIMPL COMPILER DECLARATIONS                              00021165
        *     *     *                                                          00021170
        *     *     *----------                                                00021175
        *     *     * SIMPL COMPILER CODE      (32740000)                      00021180
        *     *     **END          (32780000)                                  00021185
        *     * FINISHOFF:         (32800000)                                  00021190
        *     * RUNTAPETESTS:      (32920000)                                  00021195
        *     * MCCLRUN:           (33040000)                                  00021200
        *     *     **BEGIN        (33170000)                                  00021205
        *     *     *                                                          00021210
        *     *     * SIMPL INTERPRETER BLOCK DECLARATIONS                     00021215
        *     *     *                                                          00021220
        *     *     *----------                                                00021225
        *     *     *                                                          00021230
        *     *     * SIMPL INTERPRETER BLOCK CODE                             00021235
```

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        *     *     *                                                    00021240
        *     *     * DONE:                (44840000)                    00021245
        *     *     **END            (44860000)                          00021250
        *     **END              (44870000)                              00021255
        * RUNDISKTESTS:          (44880000)                              00021260
        *                                                                00021265
        *     **BEGIN            (44900000)                              00021270
        *     *                                                          00021275
        *     * DISK TEST BLOCK DECLARATIONS                             00021280
        *     *                                                          00021285
        *     *----------                                                00021290
        *     * DISK TEST BLOCK CODE     (55011000)                      00021295
        *     **END              (55210000)                              00021300
        * ALLDONE:               (55230000)                              00021305
        **EXIT: END.             (55270000)                              00021310
                                                                         00021320
                                                                         00021325
            ;                                                            00021330
    INTEGER                                                              00030000
        ERRORS,                                                          00040000
                %ERRORS CONTAINS THE TOTAL NUMBER OF ERRORS              00040005
                %ENCOUNTERED SINCE READING THE LAST SET OF               00040010
                %MAINTENANCE CONTROL CARDS                               00040015
        FILEADDR,                                                        00050000
            %CURRENT DISK ADDRESS (DISK TESTS ONLY)                      00051000
        TEST,  %TEST CURRENTLY BEING EXECUTED-ALSO HOLDS CURRENT         00060000
            %SEQUENCE NUMBER DURING SIMPL COMPILATION                    00060100
        STOPPER,                                                         00070000
            %USED TO TERMINATE CURRENT TEST OR TESTS USING               00070010
            %"IN" MESSAGE                                                00070020
            DELAY;                                                       00070030
                %DELAY TIME BETWEEN I/O-S                                00070040
    %************************************************************************00080000
        FILE CFILE 11(2,10),                                             00090000
            MAINT (2,10),                                                00100000
            LINE 1(2,17);                                                00110000
    %************************************************************************00160000
        SWITCH FILE OUTFILE:=LINE,CFILE,LINE,LINE,CFILE;                 00170000
        SWITCH FILE INPUTFILE:=CFILE,CFILE,MAINT;                        00180000
    %************************************************************************00200000
        DEFINE                                                           00210000
            OUTFI=OUTFILE[OUTSWITCH]#,                                   00220000
            PATCH=PATCHFILE[PATCHSWITCH]#,                               00230000
            INFILE=INPUTFILE[INSWITCH]#,                                 00240000
            TWX=CFILE#,                                                  00250000
            SPO=CFILE#,                                                  00260000
            DSK=TAPE#,                                                   00270000
            LFILE=LINE#,                                                 00280000
            COEFILE=CODEFILE#;                                           00290000
    %************************************************************************00370000
        FORMAT DONETESTS("ON-LINE MAINTENANCE TESTS COMPLETED"),          00380000
               INVCMN("INPUT DEVICE UNKNOWN←"),                          00390000
               WHATUNIT("CR OR SPO←"),                                   00400000
               STAR(36("*")),                                            00410000
               NOISER("NOISE ON ERROR←",105("#")),              %140300411000
               TERM("ONLINE/MAINT TERMINATED BY OPERATOR ");             00420000
    %************************************************************************00430000
        DEFINE TERMINATE=BEGIN                                           00440000
                            WRITE(OUTFI[DBL],TERM);                      00450000
                            DATIME)                                      00460000
```

```
                    GO EXIT;                                                    00470000
                END#,                                                          %140300480000
          BL=BOOLEAN#,                                                         %150100480100
          WRITENOISE=BEGIN                                                     %140300481000
                    WRITE(OUTFI[NO],NOISER);                                   %140300482000
                    WRITE(OUTFI[DBL]);                                         %140300483000
                END#;                                                          %140300484000
     %*********************************************************************** 00490000
          %THE FOLLOWING VARIABLES ARE USED FOR TEMPORARY STORAGE             00491000
          REAL JUNK,                                                           00500000
               NT1,                                                            00510000
               NT2,                                                            00520000
               NT3,                                                            00530000
               NT4,                                                            00540000
               NT5,                                                            00550000
               NT6;                                                            00560000
     %*********************************************************************** 00570000
          INTEGER                                                              00580000
               MIX,                                                            00590000
                    %MIX INDEX OF ONLINE/MAINT                                 00591000
               TESTINX,                                                        00592000
                    %INDEX INTO TESTARRAY FOR CURRENT TEST                     00592010
               BEGINADDR,                                                      00610000
                    %LOWEST DISK ADDRESS TO BE TESTED                          00611000
               ENDADDR,                                                        00620000
                    %HIGHEST DISK ADDRESS TO BE TESTED                         00621000
               SEGS,                                                           00630000
                    %NUMBER OF SEGMENTS TO BE TESTED                           %150100631000
               COUNT,                                                          00640000
                    %USED TO STORE THE RESULT FROM THE SCAN ROUTINE            00640100
                    %DURING DISK TESTS, IT IS USED TO COUNT THE                00640200
                    %NUMBER OF SEGMENTS WRITTEN OR READ.                       00640300
               LOCKWORD,                                                       00641000
                    %IF BIT 47-N IN THIS WORD IS SET THEN THE                  00641100
                    %N-TH SET IN THE EU UNDER TEST IS LOCKED OUT               00641200
               ZONEWORD,                                                       00642000
                    %IF BIT 48-Z IN THIS WORD IS SET, ZONE Z IS TO BE TESTED   00642100
               WBUFF,                                                          00660000
                    %LENGTH OF A LINE OF OUTPUT ON THE SPECIFIED               00660100
                    %OUTPUT DEVICE (IN WORDS)                                  00660200
               UNIT,                                                           00670000
                    %LUN OF THE UNIT UNDER TEST                                00670100
               TINU,                                                           00680000
                    %HARDWARE UNIT NUMBER OF THE UNIT UNDER TEST               %150100680100
               IOFT,                                                           00680300
                    %TIME(1) WHEN THE LAST I/O FINISHED                        00680400
               DKTYPE,                                                         00690000
                    %=1 IF 20 MS.     =2 IF 40 MS.                             00690100
               INSWITCH,                                                       00700000
                    %USED AS INDEX FOR INPUTFILE                               00700100
               OUTSWITCH,                                                      00710000
                    %USED AS INDEX FOR OUTFILE                                 00710100
               CSWITCH,                                                        00720000
                    %USED AS INDEX FOR CONTROLFILE                             00720100
               PATCHSWITCH,                                                    00730000
                    %USED AS INDEX FOR PATCHFILE                               00730100
               LSWITCH,                                                        00731000
                    %USED LIKE OUTSWITCH DURING COMPILATION                    00731100
               SEGNO,                                                          00740000
                    %NEXT SEGMENT TO BE WRITTEN IN CODEFILE                    00741000
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          NUMBEROFTESTS,                                                    00750000
               %LARGEST TEST NUMBER ALLOWED                                 00750100
          INP,                                                              00770000
               %CORE ADDRESS OF INPUTBUFFER                                 00770100
          LASTSCAN,                                                     %140200771000
               %LASTSCAN  CONTAINS THE ADDRESS OF THE NEXT CHARACTER        00771100
               %TO BE SCANNED.                                          %140200771200
          FIRSTSCAN,                                                    %140200772000
               %FIRSTSCAN CONTAINS THE ADDRESS OF THE FIRST CHARACTER       00772100
               %(NON-BLANK) SCANNED.                                    %140200772200
          ACCUMULATOR,                                                  %140200773000
               %CONTAINS THE ADDRESS WHERE THE NEXT                     %140200773100
               %CHARACTER IS TO BE SAVED.                               %140200773200
          SPECIALCHR,                                                   %140200774000
               %CONTAINS THE NON-ALPHA CHARACTER SCANNED BY SCANIT      %140200774100
          EMPTY,                                                        %150100774200
               % OCTAL 77777                                            %150100774300
 $SET OMIT = NOT TUNEUP                                                 %150100774350
          SDELTA,                                                       %150100774400
               %EXPERIMENTAL DELTA FACTOR                               %150100774410
 $POP OMIT                                                              %150100774420
          ERROR;                                                            00780000
               %USED TO STORE ERROR NUMBER OR NUMBER OF ERRORS              00780100
               %ON CURRENT TEST                                             00780200
%*********************************************************************00790000
     LIST                                                               %140400791000
          TESTL(TEST),                                                  %140400791100
          STOPL(STOPPER),                                               %140400791200
          ERRORL(ERROR);                                                %140400791300
%*********************************************************************00792000
     BOOLEAN                                                                00800000
          TSS,                                                              00800100
               %TRUE WHEN RUNNING UNDER TSSMCP                              00800200
          TESTMASK,                                                     %150100800300
               %IF BIT 47-T IN THIS WORD IS SET, TEST T IS SCHEDULED        00800400
               %IS SCHEDULED (DISK TESTS ONLY).  SEE BELOW FOR          %150100800500
               %EXCEPTIONS                                              %150100800600
          NDMASK,                                                       %150100800700
               %IF BIT 47-T IN THIS WORD IS SET, TEST T IS SCHEDULED        00800800
               %WITH LIMITED OUTPUT (USED WITH TESTS 3 & 13 ONLY)       %150100800900
          ROMASK,                                                       %150100801000
               %IF BIT 47-T IN THIS WORD IS SET, TEST T IS SCHEDULED        00801100
               %FOR READ PASS ONLY (IF ROMASK NEQ 0 THEN TESTMASK = 0)      00801200
          OCTL,                                                             00810000
               %DISPLAY PATTERNS BY 3-BIT OCTADES                           00810100
          BCL,                                                              00820000
               %DISPLAY PATTERNS IN BCL CODE                                00820200
          NOWRT,                                                            00830000
               %NO WRITE TESTS TO BE PERFORMED                              00830100
          WRTLOCK,                                                          00840000
               %PART OF TEST AREA (OR TEST UNIT) LOCKED OUT                 00840100
          DONETOG,                                                          00850000
               %NO MORE REQUESTS TO PROCESS                                 00850100
          AREACLEARED,                                                      00860000
               %TEST AREA ON DISK OCCUPIED BY TEST FILE                     00860100
          FILEOPENED,                                                       00870000
               %OUTFI IS OPEN                                               00870100
          TWXOUT,                                                           00880000
               %OUTPUT IS TO SPO OR TWX                                     00880100
          COMPAREDATA,                                                      00890000
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            %DATA ERROR ON LAST READ OPERATION                                00890100
        ABREV,                                                                00891000
            %ABREVIATED OUTPUT ON CURRENT TEST                    %150100891100
        IGNORERRORS,                                                          00892000
            %NO ERROR OUTPUT ON CURRENT TEST                                  00892100
        NOISEONERROR,                                             %140300893000
            %NOISE ON ERROR ON CURRENT TEST  (I.E. LINE OF "#")   %140300893100
        LST,                                                                  00900000
            %COMPILER LIST OPTION IS SET                                      00900100
        JUNKB,                                                                00910000
            %TEMPORARY STORAGE...                                             00910100
        COMPILING,                                                            00920000
            %SIMPL COMPILER RUNNING                                           00920100
        SAVETOG,                                                              00921000
            %SAVE INPUT TO SCANNER                                            00921100
        SAVING,                                                   %140200922000
            %A DEBLANKED COPY OF ALL INPUT IS BEING RETAINED      %140200922100
        CONF,                                                     %140200923000
            %TRUE WHEN RUNNING OR COMPILING A CONFIDENCE TEST     %140200923100
        PAGE;                                                                 00930000
            %PAGE OUTPUT DEVICE BETWEEN ERRORS                                00930100
%***************************************************************************00940000
    LABEL                                                                     00950000
        RETURN,                                                               00960000
        ALLDONE,                                                              00970000
        EXIT,                                                                 00980000
        RUNDISKTESTS;                                                         00990000
%***************************************************************************01000000
    SAVE ARRAY                                                                01010000
        LOGBUFFER[0:10],                                                      01011000
            %CONTAINS TAPE OR DISK CONF TEST RESULTS TO BE LOGGED%140401011100
        INPUTBUFFER[0:10],                                                    01020000
            %CONTAINS LAST CARD IMAGE READ                                    01020100
        JUNKBUFFER[0:60],                                                     01030000
            %TEMPORARY STORAGE ARRAY                                          01030100
        TESTBUFFER[0:5],                                                      01040000
            %ACCUMULATOR FOR SCAN ROUTINE                                     01040100
        TRANSLATEBUFFER[0:7],                                                 01050000
            %TRANSLATION TABLE FOR INT-BCL TRANSLATOR                         01050100
        OUTBUFFER[0:29];                                                      01060000
            %RESERVED FOR BUILDING OUTPUT MESSAGES                            01060100
%***************************************************************************01070000
    ARRAY                                                                     01080000
        TESTARRAY[0:63];                                                      01090000
            %    TESTARRAY[TEST]=                                             01090100
            %          [1:2]=0, FULL OUTPUT                                   01090200
            %               =1, ABREVIATED OUTPUT                             01090300
            %               =2, NO OUTPUT                                     01090310
            %               =3, NOISE ON ERROR OUTPUT            %140301090315
            %          [ 3: 1] = NODATA                          %150101090320
            %          [ 4: 1] = READ ONLY                       %150101090322
            %          [ 5:13] = NOT USED                        %150101090324
            %          [18:9]=WAIT TIME BETWEEN I/O-S                         01090330
            %          [27:6]=TEST NUMBER                                     01090340
            %          [CF  ]=NUMBER OF TIMES TEST TO BE RUN                  01090350
            %    DURING COMPILATION, TESTARRAY[TEST] CONTAINS                 01090400
            %          [1:1]=0  TEST NOT YET ENCOUNTERED                      01090500
            %               =1  TEST FOUND                                    01090600
            %          [CF] =   RELATIVE ADDRESS IN ROOT SEG                  01090700
            %                   CONTAINING BRANCH TO TEST                     01090800
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%            [FF] =   1 IF TEST PERFORMS WRITE                    01090900
%                       OR ERASE OPERATIONS                       01091000
%                     0, OTHERWISE                                01091100
%*************************************************************************01100000
     DEFINE                                                       01110000
          IOMASK=3"2000000000"#,                                  01120000
          LOGKEY=(COREADDR(LOGBUFFER[1]))#,                       01120100
 $SET OMIT = DEBUG                                                01120200
          LINKITUP=LINKUP(21,0 & COREADDR(LOGBUFFER[1])[CTF])#,   01120300
 $SET OMIT = NOT DEBUG                                            01120400
          LINKITUP=#,                                             01120500
 $POP OMIT OMIT                                                   01120600
          IOCOUNT=PATCHSWITCH#,                                   01120700
          SEGCOUNT=LSWITCH#,                                      01120800
          MAXLEVELS=9#,                                           01130000
          MAXPATTERNS=128#,                                %140401140000
          MAXBUFFS=8#,                                            01150000
          SEGSIZE=512#,                                           01160000
          MAXSEGS=64#,                                            01170000
          NUMBEROFDISKTESTS=14#,                           %150101180000
          NUMBEROFTAPETESTS=10#,                                  01190000
          CF=33:15#,                                              01210000
          FF=18:15#,                                              01220000
          SF=8:10#,                                               01230000
          HF=3:15#,                                               01240000
          SCF=33:9#,                                              01250000
          CTC=33:33:15#,                                          01260000
          CTF=18:33:15#,                                          01270000
          FTF=18:18:15#,                                          01280000
          CTSF=8:38:10#,                                          01290000
          CTHF=3:33:15#,                                          01300000
          CTSCF=33:39:9#;                                         01310000
%*************************************************************************01320000
     INTEGER STREAM PROCEDURE COREADDR(VAR);                      01330000
          BEGIN SI:=VAR; COREADDR:=SI; END;                       01340000
%*************************************************************************01350000
     STREAM PROCEDURE CLEER(A,L); VALUE A,L;                      01360000
          BEGIN LOCAL LL;                                         01370000
               SI:=LOC L; SI:=SI+6; DI:=LOC LL; DI:=DI+7; DS:=CHR;01380000
               DI:=A; DS:=8 LIT " "; SI:=A;                       01390000
               LL(DS:=32 WDS; DS:=32 WDS)); DS:=L WDS;            01400000
          END;                                                    01410000
%*************************************************************************01420000
     DEFINE CLEAR(CLEAR1,CLEAR2)=                                 01430000
          CLEER(COREADDR(CLEAR1),ENTIER(CLEAR2-1))#;              01440000
%*************************************************************************01450000
     REAL STREAM PROCEDURE DECMAL(NR); VALUE NR;                  01460000
          BEGIN                                                   01470000
               SI:=LOC NR;                                        01480000
               DI:=LOC DECMAL;                                    01490000
               DS:=8 DEC;                                         01500000
          END;                                                    01510000
%*************************************************************************01510100
     INTEGER                                               %150101510200
          FSTERR,                                          %150101510300
               %INDEX OF FIRST WORD IN ERROR               %150101510400
          WRDERR,                                          %150101510500
               %NUMBER OF WORDS IN ERROR                   %150101510600
          CHRERR;                                          %150101510700
               %NUMBER OF CHARACTERS IN ERROR              %150101510800
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%*************************************************************************01515000
     BOOLEAN PROCEDURE BIGCOMPARE(N,A,B);VALUE N,A,B;INTEGER N,A,B;%150101515100
          BEGIN                                                     %150101515200
     %*************************************************************01520000
     BOOLEAN STREAM PROCEDURE COMPARR(NROFWDS,A,B);                 %150101530000
     COMMENT    COMPARES NROFWDS WORDS STARTING AT ADDRESSES          01530100
                A AND B. IF AN ERROR OCCURS, THE WORD RETURNED IS AS  01530200
                FOLLOWS:                                            %150101530300
                                                                      01530700
                     [18:6]=NUMBER OF WORDS IN ERROR                  01530800
                     [24:12]=NUMBER OF CHARACTERS IN ERROR            01530900
                     [36:6]=INDEX OF FIRST ERROR                      01531000
                     [42:6]=1                                         01531100
     ;                                                                01531200
          VALUE NROFWDS,A,B;                                        %150101540000
          BEGIN                                                       01550000
               LABEL BAD,XIT,E,OK;                                    01560000
               LOCAL TEMP,ERROR,ERRORS,TSI;                           01570000
               DI:=LOC ERRORS; DI:=DI+4; DS:=LIT "1";                 01580000
               SI:=A; DI:=B;                                          01590000
               TALLY:=1;                                              01600000
               NROFWDS(IF 8 SC=DC THEN                                01610000
                    BEGIN                                             01620000
                         ERROR(JUMP OUT TO OK);                       01630000
                         TALLY:=TALLY+1;                              01640000
                    OK:                                               01650000
                    END ELSE                                          01660000
                    BEGIN                                             01670000
                         ERROR(JUMP OUT TO E); TEMP:=TALLY;           01690000
                         TALLY:=1; ERROR:=TALLY; TALLY:=0;            01700000
                    E:                                                01710000
                         TALLY:=TALLY+1;                              01720000
                         SI:=SI-8; DI:=DI-8;                          01730000
                         8(IF SC=DC THEN ELSE                         01740000
                         BEGIN                                        01750000
                              TSI:=SI; SI:=ERRORS; SI:=SI+8;          01760000
                              ERRORS:=SI; SI:=TSI;                    01770000
                         END);                                        01780000
                    END);                                             01790000
               ERROR(JUMP OUT TO BAD);                                01800000
               GO XIT;                                                01810000
          BAD:                                                        01820000
               TSI:=TALLY; SI:=LOC TSI; SI:=SI+7;                     01830000
               DI:=LOC COMPARR; DI:=DI+3; DS:=CHR;                    01840000
               SI:=LOC ERRORS; SI:=SI+6;                              01850000
               DS:=2 CHR;                                             01860000
               SI:=LOC TEMP; SI:=SI+7; DS:=CHR; DS:=LIT "1";          01870000
          XIT: END;                                                   01880000
          BOOLEAN T,R;                                                02000000
          INTEGER I,J,K,EC,F,W,G;                                     02010000
     %                                                                02020000
          IF N LSS 0 THEN                                             02030000
          BEGIN                                                       02040000
               A:=A+N+1;                                              02050000
               B:=B-(N:=ABS(N))+1;                                    02060000
          END;                                                        02070000
          F:=EMPTY;                                                   02080000
          FOR I:=((N+62) DIV 63)-1 STEP -1 UNTIL 0 DO                 02090000
          BEGIN                                                       02100000
               IF T:=COMPARR(IF I NEQ 0 THEN 63 ELSE                  02110000
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                        IF J:=N MOD 63 = 0 THEN 63 ELSE J,                02120000
                        A,B) THEN                                        %150102130000
                BEGIN                                                     02140000
                    EC:=EC+(K:=REAL(T)).[27:9];                           02150000
                    W:=W+K.[18:6];                                        02160000
                    IF F=EMPTY THEN F:=K.[36:6]+G;                        02170000
                END;                                                      02180000
                A:=A+63; B:=B+63; G:=G+63;                                02190000
            END;                                                          02200000
            BIGCOMPARE:=(CHRERR:=EC) NEQ 0;                              %150102390000
            FSTERR:=IF F=EMPTY THEN 0 ELSE F;                            %150102400000
            WRDERR:=W;                                                   %150102410000
            END;                                                          02420000
%*************************************************************************02430000
    LIST DIFFL(CHRERR,WRDERR,FSTERR);                                    %150102430100
%*************************************************************************02481000
REAL PROCEDURE SCANIT;                                                   %140202490000
    BEGIN                                                                %140202500000
    REAL STREAM PROCEDURE SCANAWORD(TESTBUFFER,                          %140202510000
        FIRSTSCAN,LASTSCAN,SPECIALCHR,SAVING,ACCUM);                     %140202520000
        VALUE SAVING;                                                    %140202530000
        BEGIN                                                            %140202540000
        COMMENT  SCANAWORDS COMMENCES SCANNING AT FIRSTSCAN              %140202540100
                 SCANNING CONTINUES UNTIL A NON-BLANK CHAR               %140202540200
                 IS ENCOUNTERED.  IF THAT CHARACTER IS                   %140202540300
                 A LEFT ARROW, SCANAWORD RETURNS A VALUE OF              %140202540400
                 "77777". FIRSTSCAN AND LASTSCAN ARE LEFT                %140202540500
                 POINTING AT THE LEFT ARROW.  OTHERWISE, IF              %140202540600
                 THE FIRST NON-BLANK CHARACTER (FNBC) IS                 %140202540700
                 NON-ALPHA, IT IS PLACED IN SPECIALCHR.                  %140202540800
                 IN THAT CASE, FIRSTSCAN WILL POINT AT THE               %140202540900
                 FNBC AND LASTSCAN WILL POINT AT THE CHARACTER           %140202541000
                 FOLLOWING IT.  SCANAWORD RETURNS A VALUE OF             %140202541100
                 ZERO.  IF THE FIRST NON-BLANK CHARACTER IS A            %140202541200
                 DIGIT, THE SCAN CONTINUES FOR UP TO 8 DIGITS.           %140202541300
                 THE NUMBER SCANNED IS CONVERTED TO AN OCTAL             %140202541400
                 INTEGER, AND PLACED IN TESTBUFFER[0].                   %140202541500
                 FIRSTSCAN IS LEFT POINTING AT THE FNBC, LASTSCAN        %140202541600
                 POINTS AT THE CHARACTER FOLLOWING THE NUMBER.           %140202541700
                 SCANAWORD RETURNS -(NUMBER OF DIGITS IN NUMBER)         %140202541800
                 FINALLY, IF THE FNBC IS A LETTER, UP TO 16              %140202541900
                 ALPHA CHARACTERS WILL BE PLACED IN TESTBUFFER.          %140202542000
                 FIRSTSCAN WILL POINT TO THE FNBC, AND LASTSCAN          %140202542100
                 WILL POINT TO THE FIRST NON-ALPHA CHARACTER             %140202542200
                 FOLLOWING IT.                                           %140202542300
                 SCANAWORD RETURNS THE LENGTH OF THE IDENTIFIER          %140202542400
                 SCANNED;                                                %140202542500
        LOCAL SCANCOUNT,LSCAN,FSCAN;                                     %140202550000
        LABEL B,NUMBER,XIT;                                              %140202560000
        SI:=FIRSTSCAN; DI:=LOC FSCAN; DS:=WDS; SI:=FSCAN;                %140202570000
        DI:=TESTBUFFER; DS:=16 LIT " ";                                  %140202580000
B:      IF SC=" " THEN BEGIN SI:=SI+1; GO B; END;                        %140202590000
        IF SC="+" THEN                                                   %140202600000
        BEGIN                                                            %140202610000
            DI:=LOC SCANAWORD;                                           %140202620000
            DS:=8 LIT "00077777";                                        %140202630000
            FSCAN:=SI; LSCAN:=SI;                                        %140202640000
            GO XIT;                                                      %140202650000
        END;                                                             %140202660000
        FSCAN:=SI;                                                       %140202670000
```

```
SAVING(SI:=ACCUM; DI:=LOC LSCAN; DS:=WDS;                    %140202680000
DI:=LSCAN; SI:=FSCAN;                                        %140202690000
IF SC=ALPHA THEN                                             %140202700000
BEGIN                                                        %140202710000
     DS:=LIT " ";                                            %140202720000
     IF SC LSS "0" THEN                                      %140202730000
          16(IF SC=ALPHA THEN DS:=CHR ELSE JUMP OUT)%140202740000
     ELSE                                                    %140202750000
          8(IF SC GEQ "0" THEN IF SC LEQ "9" THEN            %140202760000
               DS:=CHR ELSE JUMP OUT ELSE JUMP OUT);     02770000
END ELSE                                                     %140202780000
IF SC NEQ "#" THEN IF SC NEQ "%" THEN DS:=CHR;               %140202790000
LSCAN:=DI; SI:=LOC LSCAN; DI:=ACCUM; DS:=WDS;                %140202800000
SI:=FSCAN);                                                  %140202810000
DI:=SPECIALCHR;                                              %140202820000
DS:=8 LIT "00000000";                                        %140202830000
DI:=DI-1;                                                    %140202840000
IF SC=ALPHA THEN DI:=TESTBUFFER ELSE                         %140202850000
BEGIN                                                        %140202860000
     DS:=CHR;                                                %140202870000
     LSCAN:=SI;                                              %140202880000
     GO XIT;                                                 %140202890000
END;                                                         %140202900000
8(IF SC GEQ "0" THEN IF SC LEQ "9" THEN                      %140202910000
       BEGIN SI:=SI+1; TALLY:=TALLY+1; END                   %140202920000
  ELSE JUMP OUT ELSE JUMP OUT);                              %140202930000
SCANCOUNT:=TALLY;                                            %140202940000
SCANCOUNT(JUMP OUT TO NUMBER);                               %140202950000
16(IF SC=ALPHA  THEN                                         %140202960000
   BEGIN DS:=CHR; TALLY:=TALLY+1;END ELSE JUMP OUT);%140202970000
LSCAN:=SI;                                                   %140202980000
SCANAWORD:=TALLY;                                            %140202990000
GO XIT;                                                      %140203000000
NUMBER:                                                      %140203010000
     SCANAWORD:=TALLY;                                       %140203020000
     LSCAN:=SI;                                              %140203030000
     SI:=SI-SCANCOUNT;                                       %140203040000
     DS:=SCANCOUNT OCT;                                      %140203050000
     DI:=LOC SCANAWORD; DS:=LIT "+";                         %140203060000
XIT: SI:=LOC LSCAN; DI:=LASTSCAN; DS:=WDS;                   %140203070000
     SI:=LOC FSCAN; DI:=FIRSTSCAN; DS:=WDS;                  %140203080000
END;                                                         %140203090000
%                                                            %140203091000
SCANIT:=SCANAWORD(TESTBUFFER,FIRSTSCAN,LASTSCAN,             %140203100000
                  SPECIALCHR,SAVING,ACCUMULATOR);            %140203110000
END;                                                         %140203120000
%*************************************************************03121000
REAL STREAM PROCEDURE WHATWORD(TESTBUFFER,COMPAREBUFF,LENGTH);%140203122000
VALUE LENGTH;                                                %140203123000
COMMENT  WHATWORD SEARCHES COMPAREBUFF FOR LENGTH            %140203123100
         WORDS OR UNTIL A MATCH WITH TESTBUFFER IS           %140203123200
         FOUND.  IF A MATCH IS FOUND, WHATWORD RETURNS       %140203123300
         THE INDEX OF THE MATCHING WORD.  OTHERWISE,         %140203123400
         A VALUE OF -1 IS RETURNED.                          %140203123500
;                                                            %140203123600
BEGIN                                                        %140203124000
LABEL XIT;                                                   %140203124100
     SI:=TESTBUFFER;                                         %140203124200
     DI:=COMPAREBUFF;                                        %140203124300
     LENGTH(IF 8 SC=DC THEN                                  %140203124400
```

```
                    BEGIN WHATWORD:=TALLY; JUMP OUT TO XIT; END  %140203124500
                ELSE                                             %140203124600
                    BEGIN SI:=SI-8; TALLY:=TALLY+1; END);        %140203124700
            TALLY:=1; WHATWORD:=TALLY;                           %140203124800
            DI:=LOC WHATWORD; DS:="LIT"+";                       %140203124900
        XIT: END;                                                %140203125000
    %*****************************************************************03126000
        STREAM PROCEDURE VALUEMOVE(N,A,B); VALUE N,A,B;                03130000
            BEGIN LOCAL NN;                                            03140000
            SI:=LOC N; SI:=SI+6; DI:=LOC NN; DI:=DI+7; DS:=CHR;        03150000
            SI:=A; DI:=B;                                              03160000
            NN(DS:=32 WDS; DS:=32 WDS); DS:=N WDS;                     03170000
            END;                                                       03180000
    %*****************************************************************03190000
        STREAM PROCEDURE CHARACTERMOVE(N,A,B); VALUE N,A,B;            03200000
            BEGIN LOCAL NN,NNN;                                        03210000
            SI:=LOC N; SI:=SI+5; DI:=LOC NNN; DI:=DI+7; DS:=CHR;       03220000
            DI:=LOC NN; DI:=DI+7; DS:=CHR;                             03221000
            SI:=A; DI:=B; NN(DS:=32 CHR; DS:=32 CHR); DS:=N CHR;       03230000
            NNN(8(16(DS:=32 CHR)));                                    03231000
            END;                                                       03240000
    %*****************************************************************03250000
        STREAM PROCEDURE FUNNYMOVE(N,A,B); VALUE N,A;                  03260000
            BEGIN SI:=A;DI:=B;N(DS:=8 CHR); END;                       03270000
    %*****************************************************************03280000
        STREAM PROCEDURE EDITRR(LENGTH,SOURCE,DEST,BCL,OCTL,       %150103290000
        COMMENT   EDITS LENGTH WORDS FROM A AND PLACES THEM            03290100
                  AT B.  IF BCL IS TRUE, A TRANSLATION FROM            03290200
                  INT TO BCL IS PERFORMED. TRANSLATBUFFER IS THE INT- %150103290300
                  BCL TRANSLATION TABLE.  IF TWXOUT IS TRUE        %150103290400
                  EACH LINE IS FOLLOWED BY A LEFT ARROW;               03290700
                TRANSLATEBUFFER,TWXOUT);                           %150103300000
                VALUE LENGTH,SOURCE,BCL,OCTL,TWXOUT;                   03310000
                BEGIN                                                  03320000
                LOCAL TEMPS,TEMPD,TEMPR;                               03330000
                LABEL XIT;                                             03340000
                    SI:=SOURCE;                                        03350000
                    TEMPS:=SI;                                         03360000
                BCL(DI:=SOURCE; TEMPD:=DI;                         %150103370000
                    LENGTH(8(DI:=LOC TEMPR; DI:=DI+7; DS:=CHR;         03380000
                             TEMPS:=SI; SI:=TRANSLATEBUFFER; SI:=SI+TEMPR;  03390000
                             DI:=TEMPD; DS:=CHR; TEMPD:=DI;            03400000
                             SI:=TEMPS));                              03410000
                           SI:=SOURCE; JUMP OUT);                  %150103420000
                DI:=DEST;                                              03430000
                TALLY:=1; TEMPS:=TALLY;                                03440000
                OCTL(LENGTH(2(8(DS:=3 RESET; 3(IF SB THEN DS:=SET ELSE 03450000
                                    DS:=RESET; SKIP SB);               03460000
                             );TEMPS(DS:="LIT " "));DS:="LIT " ");     03470000
                    JUMP OUT TO XIT);                                  03480000
                LENGTH(DS:=8 CHR; DS:="LIT " ");                       03490000
                XIT: TWXOUT(DS:="LIT "←"); END;                        03500000
    %*****************************************************************03510000
        DEFINE EDITR(A,B,C,D,E,F,G,H)=EDITRR(A,B,C,D,E,G,H)#,      %150103520000
               EDIT(EDIT1,EDIT2,EDIT3,EDIT4,EDIT5,EDIT6,EDIT7,EDIT8)= %150103520100
                EDITR(EDIT1,COREADDR(EDIT2),EDIT3,EDIT4,EDIT5,EDIT6,   03530000
                 EDIT7,EDIT8)#;                                        03540000
    %*****************************************************************03550001
        INTEGER PROCEDURE SKIPSTOPOROM(OK,SKIP);VALUE OK,SKIP;         03550100
          BOOLEAN OK,SKIP;                                             03550200
```

```
        BEGIN                                                                   03550300
                                                                                03550400
        COMMENT READS CFILE AND RETURNS THE FOLLOWING DEPENDING                 03550500
                ON WHAT HAS BEEN ENTERED:                                       03550600
                                                                                03550700
                1=SKIP                                                          03550800
                2=STOP                                                          03550900
                3=OK                                                            03551000
                4=WY                                                            03551100
                                                                                03551200
        ;                                                                       03551300
        INTEGER STREAM PROCEDURE SSOROK(B,C,OK,SKP);VALUE OK,SKP;               03551400
           BEGIN LABEL L,LL,XIT;                                                03551500
           SI:=B;L: IF SC="←" THEN GO XIT ELSE IF SC=" " THEN                   03551600
           BEGIN SI:=SI+1;GO L;END;                                             03551700
           IF SC="S" THEN                                                       03551800
              BEGIN SI:=SI+1;                                                   03551900
              IF SC="K" THEN TALLY:=SKP ELSE IF SC="I" THEN TALLY:=2;           03552000
              END ELSE                                                          03552100
           IF SC="O" THEN OK(TALLY:=3) ELSE                          %140003552200
           IF SC="W" THEN TALLY:=4;                                             03552300
           SSOROK:=TALLY;                                                       03552400
           OK:=TALLY;                                                           03552500
           OK(JUMP OUT TO XIT);                                                 03552600
           DI:=C;DS:=5 LIT "ERR: ";                                             03552700
           LL:DS:=CHR; IF SC NEQ "←" THEN GO LL;                                03552800
        XIT:END;                                                                03552900
        SWITCH FORMAT AX:=("SKIP OR STOP"),("STOP OR OK"),                      03553000
                          ("SKIP, STOP OR OK");                     %140403553100
        INTEGER I;                                                              03553200
        LABEL INV;                                                              03553300
        %                                                                       03553400
        INPUTBUFFER[10]:=REAL(NOT FALSE);                                       03553500
        SKIP:=SKIP AND TRUE;                                      %140403553520
        OK:=OK AND TRUE;                                          %140403553540
      INV:                                                                      03553600
        WRITE(CFILE,AX[REAL(SKIP)+2×REAL(OK)-1]);                               03553650
        READ(CFILE,10,INPUTBUFFER[*]);                                          03553700
        IF I:=SSOROK(INPUTBUFFER,OUTBUFFER,OK,SKIP)=0 THEN        %140403553800
           BEGIN                                                                03553900
           WRITE(CFILE,10,OUTBUFFER[*]);                                        03554000
           GO INV;                                                              03554100
           END;                                                                 03554200
        SKIPSTOPOROK:=I;                                                        03554300
        END;                                                                    03554400
      %*********************************************************************03555000
        BOOLEAN PROCEDURE STOPPERCHECK(IT);                       %140203556000
            VALUE IT; BOOLEAN IT;                                 %140203557000
            BEGIN                                                 %140203558000
            COMMENT  EXAMINES STOPPER & IF VALID "IN30" MESSAGE   %140203558100
                     HAS BEEN ENTERED THEN WRITES OUT THE APPROPRIATE%140203558200
                     TERMINATING MESSAGE AND SETS STOPPERCHECK TRUE, %140203558300
                     IF STOPPER LEQ 0 THEN CHECKS FOR A VALID <MIX>IT%140203558400
                     MESSAGE AND SETS STOPPER TO THE APPROPRIATE VALUE   03558500
                     AS DETERMINED BY SCANNING THE <MIX>AX MESSAGE      %140203558600
                     AND PROCEEDS AS IF STOPPER HAD BEEN SET BY THE     %140203558700
                     "IN30" MESSAGE.                                    %140203558800
                   ;                                                    %140203558900
                INTEGER W,COUNT;                                        %140203559000
                LABEL CHECKIT,BADIT,CONTROL,CHECKSTOPPER,TWO,XIT;       %140203559100
```

```
                FORMAT                                                  %140203559200
                    INVIN("INVALID IN=",I4,"←"),                        %140203559300
                    INVIT("INVALID INTERRUPT REQUEST←"),                %140203559400
                    IPC("ENTER INTERRUPT REQUEST←"),                    %140203559500
                    TERMTEST("TEST #",I2," TERMINATED BY OPERATOR");      03559600
                DEFINE                                                  %140203559700
                    SCAN=BEGIN FIRSTSCAN:=LASTSCAN;                     %140203559800
                               COUNT:=SCANIT;                           %140203559900
                         END#,                                          %140203560000
                    WORD=WHATWORD(TESTBUFFER,JUNKBUFFER,11)#;           %140203560100
                IF STOPPER LSS 0 THEN                                   %140203560200
                BEGIN                                                   %140203560300
                    STOPPER:=0;                                         %140203560400
                    GO CHECKIT;                                         %140203560500
                END;                                                    %140203560600
                IF STOPPER NEQ 0 THEN                                   %140203560700
                BEGIN                                                   %140203560800
                    IF STOPPER=3 OR CONF AND STOPPER LSS 4 THEN         %140203560900
                    GO CHECKSTOPPER;                                    %140203561000
                    WRITE(CFILE,INVIN,STOPL);                           %140203561200
                    STOPPER:=0;                                         %140203561300
                END;                                                    %140203561400
                IF IT THEN  % <MIX>IT                                   %140203561500
                BEGIN                                                   %140203561600
            CHECKIT:  INPUTBUFFER[10]:=REAL(NOT FALSE);                 %140203561800
                    IF TRUE THEN                                        %140203561900
                    FILL JUNKBUFFER[*] WITH                             %140203562000
                         "CONF     ",  %  0                            %140203562100
                         "OUT      ",  %  1                            %140203562200
                         "INT      ",  %  2                            %140203562300
                         "BCL      ",  %  3                            %140203562400
                         "UCT      ",  %  4                            %140203562500
                         "CONFIDEN",   %  5                            %140203562600
                         "OUTPUT   ",  %  6                            %140203562700
                         "STOP     ",  %  7                            %140203562800
                         "WAIT     ",  %  8                            %140203562900
                         "SKIP     ",  %  9                            %140203563000
                         "TEST     "   % 10                            %140203563100
                ELSE                                                    %140203563200
            BADIT:  WRITE(CFILE,INVIT);                                 %140203563300
                    WRITE(CFILE,IPC);                                   %140203563400
                    READ(CFILE,10,INPUTBUFFER[*]);                      %140203563500
                    LASTSCAN:=INP;                                      %140203563600
                    SCAN;                                               %140203563700
                    IF COUNT GTR 63 THEN GO XIT;    % "←"               %140203563800
                    IF SPECIALCHR="*" THEN GO CONTROL ELSE              %140203564000
                    IF COUNT LEQ 0 OR W:=WORD LSS 0 THEN GO BADIT;      %140203564100
                    IF W LSS 7 THEN  % "CONTROLCARD"                    %140203564200
                    BEGIN                                               %140203564300
            CONTROL:        STOPPER:=1+ REAL(CONF);                     %140203564400
                            IF INSWITCH=2 THEN                          %140203564500
                            BEGIN                                       %140203564600
                                IF NOT DONETOG THEN CLOSE(MAINT)        %140203564700
                                ELSE DONETOG:=FALSE;                    %140203564800
                                INSWITCH:=CSWITCH;                      %140203564900
                            END;                                        %140203565000
                            INSWITCH:=INSWITCH+10;                      %140203565100
                    END ELSE                                            %140203565200
                    IF W=7 THEN  % "STOP"                               %140203565300
                    BEGIN                                               %140203565400
```

```
                    SCAN;                                                %140203565500
                    IF COUNT GTR 63 THEN STOPPER:=3 ELSE                 %140203565600
                    IF WORD=10 AND CONF THEN STOPPER:=2 ELSE             %140203565700
                    GO BADIT;                                            %140203565800
               END ELSE                                                  %140203565900
               IF W=8 THEN  % "WAIT"                                     %140203566000
               BEGIN                                                     %140203566100
                    SCAN;                                                %140203566200
                    IF SPECIALCHR="=" THEN SCAN;                         %140203566300
                    IF COUNT LSS 0 THEN                                  %140203566400
                    BEGIN                                                %140203566500
                         DELAY:=TESTBUFFER[0];                           %140203566600
                         GO XIT;                                         %140203566700
                    END;                                                 %140203566800
                    GO BADIT;                                            %140203566900
               END ELSE                                                  %140203567000
               IF W=9 AND CONF THEN    % "SKIP"                          %140203567100
               BEGIN                                                     %140203567200
                    STOPPER:=1;                                          %140203567300
               END ELSE                                                  %140203567400
               GO BADIT;                                                 %140203567500
          CHECKSTOPPER:                                                  %140203567600
               IF NOT CONF THEN TEST:=TESTINX:=0;                        %140203567700
               WRITE(OUTFI[DBL],TERMTEST,TESTL);                         %140203567800
               IF STOPPER=3 THEN                                         %140203567900
               BEGIN                                                     %140203568000
                    WRITE(OUTFI[DBL],TERM);                              %140203568100
                    DONETOG:=TRUE;                                       %140203568200
                    IF CONF THEN GO TWO; GO XIT;                         %140203568300
               END;                                                      %140203568400
               IF STOPPER=2 THEN                                         %140203568500
               BEGIN                                                     %140203568600
                    IF DONETOG THEN                                      %140203568700
                    BEGIN                                                %140203568800
                         DONETOG:=FALSE;                                 %140203568900
                         INSWITCH:=CSWITCH;                              %140203569000
                    END;                                                 %140203569100
          TWO:      UNLOCK(TESTARRAY[*]);                                %140203569200
                    TESTARRAY[TESTINX+1]:=REAL(NOT FALSE);               %140203569300
               END;                                                      %140203569400
          END;                                                           %140203569500
          XIT:                                                           %140203569600
               STOPPERCHECK:= STOPPER NEQ 0;                             %140203569700
     END STOPPERCHECK;                                                   %140203569800
%*************************************************************************03630000
     INTEGER STREAM PROCEDURE OCTAL(NR); VALUE NR;                         03640000
          BEGIN                                                            03650000
          SI:=LOC NR; DI:=LOC OCTAL; DS:=8 OCT;                            03660000
          END;                                                             03670000
%*************************************************************************03680000
     STREAM PROCEDURE MOVE(N,A,B); VALUE N;                                03690000
          BEGIN LOCAL NN;                                                  03700000
               SI:=LOC N; DI:=LOC NN; SI:=SI+6; DI:=DI+7; DS:=CHR;         03710000
               SI:=A; DI:=B; NN(DS:=32 WDS; DS:=32 WDS);                   03720000
               DS:=N WDS;                                                  03730000
          END;                                                             03740000
%*************************************************************************03740100
     STREAM PROCEDURE REVERSEMOVE(C,A,B); VALUE C,A,B;                     03740200
          BEGIN                                                            03740300
          LOCAL CC,CCC;                                                    03740400
```

```
          %                                                                    03740500
          SI:=LOC C; SI:=SI+5; DI:=LOC CCC; DI:=DI+7; DS:=CHR;                 03740600
          DI:=LOC CC; DI:=DI+7; DS:=CHR; SI:=A; SI:=SI-1; DI:=B;               03740700
          DI:=DI-1;                                                            03740800
          CCC(4(32(32(DS:=CHR; DI:=DI-2; SI:=SI-2))));                         03740900
          CC(2(32(DS:=CHR; DI:=DI-2; SI:=SI-2)));                              03741000
          C(DS:=CHR; DI:=DI-2; SI:=SI-2);                                      03741100
          END;                                                                 03741200
%*************************************************************************    03750000
     DEFINE DECIMAL(DECIMAL1)=IF MAINT THEN MAINTADDR(DECIMAL1)                03760000
                              ELSE DECMAL(DECIMAL1)#,                          03770000
       COMMON=ERRORS#;                                                         03780000
%*************************************************************************    03790000
     PROCEDURE IOREQUEST(FINAL,IODESC,LOCATION);                              03800000
     COMMENT   CALLS THE MCP PROCEDURE BY THE SAME NAME.                      03800100
               MCP FURNISHES THE FLAG BIT ON THE                              03800200
               LOCATION ENTRY;                                                03800300
          VALUE FINAL,IODESC,LOCATION;                                        03810000
          REAL FINAL,IODESC,LOCATION;                                         03820000
          COMMUNICATE(41);                                                    03830000
%*************************************************************************    03840000
     REAL PROCEDURE DISKIO(CORE,SIZE,DISK);                                   03850000
          VALUE SIZE,DISK; ARRAY CORE[*]; INTEGER SIZE,DISK;                  03860000
     COMMENT   PERFORMS A DISKIO OF ABS(SIZE) WORDS INTO/FROM                 03860100
               ARRAY CORE[*] AND DISK ADDRESS DISK.  SIGN BIT                 03860200
               OF SIZE DETERMINES READ/WRITE( READ = SIZE < 0                 03860300
               ).  RETURNS RESULT DESCRIPTOR;                                 03860400
          BEGIN                                                               03870000
          REAL IOD;                                                %140703880000
          INTEGER LOCATION;                                                   03890000
               CORE[0]:=DECMAL(DISK:=DISK);                        %140703960000
               IOD:=                                                          03970000
               (COREADDR(CORE[0]))&SIZE[8:38:10]&((SIZE.[38:10]+29)           03980000
                    DIV 30 + 512)[18:33:15]&SIZE[24:1:1]&                     03990000
                    TINU[3:43:5];                                             04000000
               LOCATION:=COREADDR(IOD);                                       04010000
               IOREQUEST(-IOD&0[25:40:8],IOD,LOCATION&UNIT[12:42:6]&          04020000
                    1[2:47:1]);                                               04030000
               WAIT(LOCATION,IOMASK);                                         04040000
               DISKIO:=IOD;                                                   04050000
          END DISKIO;                                                         04060000
%*************************************************************************    04060100
     PROCEDURE FINDOUTPUT(OS,WB);VALUE OS,WB;INTEGER OS,WB;                   04060200
          BEGIN                                                               04060300
                                                                              04060400
          COMMENT   OS=0 PRINTER                                              04060500
                    =1 SPO                                                    04060550
                    =2 PRINTER BACKUP TAPE                                    04060600
                    =3 PRINTER BACKUP DISK                                    04060700
                    =4 TWX                                                    04060800
          ;                                                                   04060900
          IF OS NEQ OUTSWITCH THEN                                            04061000
               BEGIN                                                          04061100
               IF FILEOPENED AND NOT TWXOUT THEN                              04061200
                    BEGIN CLOSE(LINE);FILEOPENED:=FALSE;END;                  04061300
               IF NOT(OS=1 OR OS=4) THEN                                      04061400
                    LINE.TYPE:=IF OS=0 THEN 1 ELSE                            04061500
                               IF OS=2 THEN 6 ELSE 15;                        04061600
               END;                                                           04061700
          IF NOT COMPILING THEN                                               04061800
```

```
          TWXOUT:=(OUTSWITCH:=OS=1 OR OS=4);                                    04061900
        WBUFF:=IF WB=0 THEN IF TWXOUT THEN 9 ELSE 15 ELSE                       04062000
          IF TWXOUT THEN MIN(WB,9) ELSE MIN(WB,17);                             04062100
        END OF FINDOUTPUT;                                                      04062200
%***************************************************************************04070000
    PROCEDURE DATIME;                                                           04080000
        BEGIN                                                                   04090000
        ARRAY A[0:6];                                                           04100000
        INTEGER D,H,M,MIN,Q,P,Y,R;                                              04110000
        REAL T1;                                                                04120000
        LABEL OWT;                                                              04130000
        FORMAT DT(A*,"DAY,  ",2(I2,"/"),I2,", ",I2,":",A2,X1,A1,                04140000
            "M."),                                                              04150000
          DT1(X26,"BURROUGHS B-5700 SIMPL COMPILER  ",                          04160000
        "MARK.XV.3.00",                                                         04170000
            X5,A*,"DAY,  ",2(I2,"/"),I2,", "                                    04171000
            ,I2,":",A2,X1,A1,"M.");                                             04180000
        LIST LST(A[R],[42:6],A[R],[6:36],M,D,Y,12xREAL(Q:=                      04190000
            H MOD 12=0)+Q,Q:=MIN MOD 10+(MIN DIV 10)x64,                        04200000
            IF H GEQ 12 THEN "P" ELSE "A");                                     04210000
        FILL A[*] WITH "SUN3","MON3","TUES4","WEDNES6",                         04220000
                "THURS5","FRI3","SATUR5";                                       04230000
        IF COMPILING THEN                                                       04231000
        BEGIN                                                                   04232000
            WRITE(LFILE[DBL]);                                                  04232100
            WRITE(LFILE[DBL]);                                                  04232200
        END;                                                                    04232300
        Y:=TIME(0);                                                             04240000
        T1:=TIME(1);                                                            04250000
        D:=Y.[30:6]x100+Y.[36:6]x10+Y.[42:6];                                   04260000
        Y:=Y.[18:6]x10+Y.[24:6];                                                04270000
        FOR H:=31,IF Y MOD 4=0 THEN 29 ELSE 28,                                 04280000
        31,30,31,30,31,31,30,31,30 DO                                           04290000
        IF D LEQ H THEN GO OWT ELSE                                             04300000
        BEGIN D:=D-H; M:=M+1; END;                                              04310000
    OWT:                                                                        04320000
        H:=T1 DIV 216000; MIN:=(T1 DIV 3600) MOD 60;                            04330000
        IF M LSS 2 THEN                                                         04340000
        BEGIN Q:=M+11; P:=Y-1; END ELSE                                         04350000
        BEGIN Q:=M-1; P:=Y; END;                                                04360000
        M:=M+1;                                                                 04370000
        R:=(((Qx26-2)DIV 10+D+P+P.[36:10]+1)MOD 7;                              04380000
        IF COMPILING THEN WRITE(LFILE[DBL],DT1,LST) ELSE                        04390000
        WRITE(OUTFI[DBL],DT,LST);                                               04400000
        FILEOPENED:=TRUE;                                                       04411000
    END;                                                                        04420000
%***************************************************************************04430000
    PROCEDURE DKBUSINESS(BUFF); VALUE BUFF; REAL BUFF;                          04440000
    COMMENT  DOES MANY STRANGE AND WONDEROUS THINGS.                            04440100
                                                                                04440200
        IF BUFF.[SF]=1023       M[BUFF.[CF]]:=                                  04440300
                                PRNTABLE[BUFF.[FF]]                             04440400
        IF BUFF.[15:15]=0       M[BUFF.[CF]]:=                                  04440500
                                USERSTA[MIX]                                    04440600
        IF BUFF.[FF]=8"77777"   M[BUFF.[CF]]:=                                  04440700
                                MOD31OS (MCP)                                   04440800
        OTHERWISE               CALLS MCP ROUTINE BY                            04440900
                                SAME NAME AND PASSES                            04441000
                                BUFF AS PARAMETER;                              04441100
                                                                                04441200
```

```
        COMMUNICATE(40);                                                    04450000
%*******************************************************************************04460000
    PROCEDURE LINKUP(TYPE,KEY); VALUE TYPE,KEY; REAL TYPE,KEY;              04460100
        COMMUNICATE(40);                                                    04460200
%*******************************************************************************04460300
    BOOLEAN STREAM PROCEDURE TWOTEST(N,A);VALUE N,A;                %150104460400
        BEGIN                                                       %150104460450
        SI:=LOC A;SKIP N SB;IF SB THEN TALLY:=1;TWOTEST:=TALLY;     %150104460500
        END;                                                        %150104460550
%*******************************************************************************04460600
    STREAM PROCEDURE TWORESET(N,A); VALUE N;                            04460700
        BEGIN DI:=A;SKIP N DB;DS:=RESET;END;                            04460800
%*******************************************************************************04460900
    STREAM PROCEDURE TWOSETR(N,A); VALUE N;                             04461000
        BEGIN DI:=A;SKIP N DB;DS:=SET;END;                              04461100
%*******************************************************************************04461200
    DEFINE                                                              04461300
        TWOSET(TWOSET1,TWOSET2)=                                        04461400
            TWOSETR(ENTIER(47-(TWOSET1)),TWOSET2)#,                     04461500
        TWOT(TWOT1,TWOT2)=                                              04461600
            TWOTEST(ENTIER(47-(TWOT1)),TWOT2)#,                         04461700
        RESET(RESET1,RESET2)=                                           04461800
            TWORESET(ENTIER(47-(RESET1)),RESET2)#;                      04461900
%*******************************************************************************04462000
    INTEGER STREAM PROCEDURE INUNIT(BUFF);                              04470000
        BEGIN                                                           04480000
        LABEL B;                                                        04490000
            SI:=BUFF;                                                   04500000
        B:  IF SC=" " THEN BEGIN SI:=SI+1; GO B; END ELSE               04510000
            IF SC="S" THEN TALLY:=1 ELSE                                04520000
            IF SC="C" THEN TALLY:=2 ELSE                                04530000
            TALLY:=3;                                                   04540000
            INUNIT:=TALLY;                                              04550000
        END;                                                            04560000
%*******************************************************************************04570000
    STREAM PROCEDURE BOJMESS(BUFF,INUNIT);                              04580000
        BEGIN                                                           04590000
        LABEL XIT;                                                      04600000
            DI:=BUFF;                                                   04610000
            DS:=14 LIT "INPUT IS FROM ";                                04650000
            SI:=INUNIT;                                                 04660000
            2(SI:=SI+1;7(IF SC="←" THEN                                 04670000
                BEGIN                                                   04680000
                    DS:=CHR;                                            04690000
                    JUMP OUT 2 TO XIT;                                  04700000
                END ELSE DS:=CHR));                                     04710000
        XIT: END;                                                       04720000
%*******************************************************************************04730000
    PROCEDURE TSSWHEN(SECONDS); VALUE SECONDS; INTEGER SECONDS;         04740000
        BEGIN                                                           04750000
        COMMENT "WHEN" FOR TSS USE.  DOES NOT REQUIRE THAT              04760000
            PROGRAM REMAIN IN CORE WHILE WAITING;                       04770000
        NT1:=TIME(1)+60×SECONDS;                                        04780000
        WHILE SECONDS GTR 0 AND NT1 GTR TIME(1) DO                      04790000
            BEGIN                                                       04800000
            SECONDS:=SECONDS-1;                                         04810000
            WHEN(1);                                                    04820000
            END;                                                        04830000
        END;                                                            04840000
%*******************************************************************************04850000
```

```
        DEFINE                                                                  04860000
             WHENN(WHENN1)=                                                     04870000
                  BEGIN                                                         04880000
                  IF TSS THEN TSSWHEN(WHENN1) ELSE WHEN(WHENN1);                04890000
                  END#;                                                         04900000
        %*******************************************************************    04920000
             PROCEDURE MOVEANDWRITE(KEY,SZ,DOBLE,UTILITY,BUFFER);               04930000
                  VALUE KEY,SZ,DOBLE,BUFFER;                                    04940000
                  INTEGER SZ,BUFFER; BOOLEAN KEY,DOBLE;                         04950000
                  FILE UTILITY;                                                 04960000
             COMMENT   WRITES SZ WORDS TO FILE UTILITY BEGINNING AT             04960100
                       CORE ADDRESS BUFFER.  OUTPUT WILL BE DOUBLE              04960200
                       SPACED IF DOBLE IS TRUE.  IF KEY, DATA WILL              04960300
                       BE WRITTEN WBUFF WORDS PER I/O - OTHERWISE               04960400
                       30 WORD I/OS ARE ASSUMED.  IF KEY AND REAL(KEY)          04960500
                       LSS 64, EDITING IS PERFORMED.  OTHERWISE,                04960600
                       THE DATA IS MERELY MOVED AND WRITTEN;                    04960700
                  BEGIN                                                         04970000
                  INTEGER I,J,K,L,X;                                            04980000
                  LABEL EOL;                                                    04990000
                  FORMAT WRDNO(I4),                                             05000000
                       DUPF(X8,*(2(8("="),"  "),"  ")),                         05010000
                       SDUPF(X8,*(8("="),"  "));                                05020000
                  LIST LL(L);                                                   05021000
                  BOOLEAN B,DUP;                                                05030000
                  BOOLEAN STREAM PROCEDURE COMPARR(N,A,B);VALUE N,A,B;          %150105030100
                       BEGIN                                                    %150105030200
                       SI:=A;DI:=B;                                             %150105030300
                       N(IF 8 SC NEQ DC THEN BEGIN TALLY:=1;JUMP OUT;END);      %150105030400
                       COMPARR:=TALLY;                                          %150105030500
                       END;                                                     %150105030600
        %                                                                       05040000
                  L:=K:=WBUFF;                                                  %140605050000
                  J:=IF KEY THEN                                                %140605060000
                     (SZ DIV (L:=12-6×REAL(OCTL)-                               05070000
                     (3+2×ABS(REAL(OCTL)-1))×REAL(TWXOUT))                      05080000
                     -REAL(SZ MOD L=0)) ELSE                                    05090000
                     ((SZ+K-1) DIV K)-1;                                        05100000
                  B:=SZ MOD L=0;                                                05110000
                  BUFFER:=BUFFER-L;                                             05120000
                  FOR I:=0 STEP 1 UNTIL J DO                                    05130000
                  BEGIN                                                         05140000
                       CLEAR(OUTBUFFER,K);                                      05150000
                       IF KEY THEN                                              %140605160000
                       BEGIN                                                    05170000
                       IF COMPARR(L,BUFFER,BUFFER:=BUFFER+L) OR                 %150105180000
                       I=0 OR                                                   05185000
                       I=J THEN                                                 05190000
                       BEGIN                                                    05200000
                       DUP:=FALSE;                                              05210000
                            WRITE(OUTBUFFER[*],WRDNO,I×L+1);                    05220000
                            IF BCL THEN FUNNYMOVE(L,BUFFER,JUNKBUFFER);         05220100
                            EDITR(IF I=J AND NOT B THEN                         05230000
                                 ENTIER(SZ MOD L) ELSE L,                       05240000
                                 IF BCL THEN COREADDR(JUNKBUFFER) ELSE          %150105250000
                                 BUFFER,                                        %150105250100
                                 OUTBUFFER[1],BCL,OCTL,JUNKBUFFER,              05260000
                                 TRANSLATEBUFFER,TWXOUT);                       05270000
                       END ELSE                                                 05280000
                       IF DUP THEN GO EOL ELSE                                  05290000
```

```
                    BEGIN                                                    05300000
                         IF OCTL THEN                                        05310000
                              WRITE(OUTBUFFER[*],DUPF,LL) ELSE               05320000
                              WRITE(OUTBUFFER[*],SDUPF,LL);                  05330000
                         DUP:=TRUE;                                          05340000
                    END;                                                     05350000
                    END ELSE                                                 05360000
                    FUNNYMOVE(IF I=J AND NOT B THEN ENTIER(SZ MOD K)         05370000
                              ELSE K,BUFFER:=BUFFER+K,OUTBUFFER);            05380000
                    IF DOBLE THEN                                            05390000
                    WRITE(UTILITY[DBL],K,OUTBUFFER[*]) ELSE                  05400000
                    WRITE(UTILITY,K,OUTBUFFER[*]);                           05410000
          EOL: END;                                                          05420000
          END;                                                               05430000
 $SET OMIT=OMITCOMPILER                                                      05439999
%*************************************************************************05440000
     PROCEDURE TRANSFEROUT(SIZE,BLENGTH,F,A); VALUE SIZE,BLENGTH;           05450000
          INTEGER SIZE,BLENGTH; FILE F; ARRAY A[*];                          05460000
     COMMENT   WRITES SIZE WORDS INTO FILE F FROM ARRAY A,                   05460100
               BLENGTH SPECIFIES THE LOGICAL RECORD SIZE OF                  05460200
               F;                                                            05460300
          BEGIN                                                              05470000
          INTEGER I,J; BOOLEAN B;                                            05480000
%                                                                            05490000
               WRITE(F,MIN(SIZE,BLENGTH),A[*]);                              05520000
               IF SIZE GTR BLENGTH THEN                                      05520100
               BEGIN                                                    %140405520200
                    B:=SIZE MOD BLENGTH=0;                              %140405520300
                    J:=((SIZE+BLENGTH-1) DIV BLENGTH)-1;                %140405520400
                    FOR I:=1 STEP 1 UNTIL J DO                          %140405530000
                    BEGIN                                               %140405540000
                         CLEAR(F(0),BLENGTH);                           %140405550000
                         MOVE(IF I=J AND NOT B THEN ENTIER(SIZE MOD     %140405560000
                              BLENGTH) ELSE BLENGTH, A[I×BLENGTH],      %140405570000
                              F(0));                                    %140405580000
                         WRITE(F);                                      %140405590000
                    END;                                                %140405600000
               END;                                                     %140405601000
          END;                                                               05610000
 $POP OMIT                                                                   05610001
%*************************************************************************05620000
     PROCEDURE TRANSFERIN(SIZE,BLENGTH,F,A); VALUE SIZE,BLENGTH;            05630000
          INTEGER SIZE,BLENGTH; FILE F; ARRAY A[*];                          05640000
     COMMENT   READ SIZE WORDS FROM FILE F (WITH LOGICAL                     05640100
               RECORD SIZE BLENGTH) INTO ARRAY A;                            05640200
          BEGIN                                                              05650000
          BOOLEAN B; INTEGER I,J;                                            05660000
%                                                                            05670000
               READ(F,MIN(SIZE,BLENGTH),A[*]);                               05680000
               IF SIZE GTR BLENGTH THEN                                      05680100
               BEGIN                                                         05690000
                    B:=SIZE MOD BLENGTH=0;                                   05700000
                    J:=((SIZE+BLENGTH-1)DIV BLENGTH)-1;                      05710000
                    FOR I:=1 STEP 1 UNTIL J DO                               05720000
                    BEGIN                                                    05730000
                         MOVE(IF I=J AND NOT B THEN ENTIER(SIZE              05750000
                              MOD BLENGTH) ELSE BLENGTH,                     05760000
                              F(0),A[I×BLENGTH]);                            05770000
                         READ(F);                                       %140405771000
                    END;                                                     05780000
```

```
            END;                                                                05790000
        END;                                                                    05800000
%#########OUTER BLOCK CODE STARTS HERE#####################################05810000
%                                                                               05820000
        EMPTY:=3"77777";                                                %150105820100
        FUNNYMOVE(1,COREADDR(INPUTBUFFER)-2,MIX);                               05830000
        MIX:=MIX,[9:6];                                                         05840000
        DKBUSINESS(COREADDR(JUNK));                                             05840100
        TSS:=(JUNK=REAL(NOT FALSE));                                            05840200
        IF COMMON=0 THEN                                                        05850000
            IF JUNK,[15:9] LSS 32 THEN COMMON:=3;                               05880000
        WHILE COMMON GTR 2 OR COMMON LSS 0 DO                                   05900000
        BEGIN                                                                   05910000
            WRITE(SPO,INVCMN);                                                  05920000
            WRITE(SPO,WHATUNIT);                                                05930000
            READ(SPO,10,INPUTBUFFER[*]);                                        05940000
            COMMON:=INUNIT(INPUTBUFFER);                                        05950000
        END;                                                                    05960000
        IF COMMON NEQ 2 THEN CSWITCH:=INSWITCH:=COMMON                          05970000
        ELSE                                                                    05980000
        BEGIN CSWITCH:=1; INSWITCH:=2; END;                                     05990000
        FILL JUNKBUFFER[*] WITH                                                 06000000
            0,"←      ",                                                        06010000
            "SPO←   ",0,                                                        06020000
            "CARD RE","ADER←  ";                                                06030000
        IF JUNKBUFFER[0]:=TIME(-1) NEQ 0 AND COMMON NEQ 1 THEN                  06040000
            COMMON:=0;                                                          06040100
        BOJMESS(OUTBUFFER,JUNKBUFFER[2×COMMON]);                                06050000
        WRITE(SPO,10,OUTBUFFER[*]);                                             06060000
        IF CSWITCH=0 THEN                                                       06061000
            BEGIN                                                               06061100
            CLOSE(CFILE);                                                       06061200
            CFILE.TYPE:=19;                                                     06061300
            END;                                                                06061400
        COMMON:=0;                                                              06070000
        ENDADDR:=BEGINADDR:=-1;                                                 06080000
    RETURN:                                                                     06090000
    BEGIN                                                                       06100000
%#########SCAN BLOCK DECLARATIONS BEGIN HERE#################################06110000
    REAL PMFID,PFID;                                                    %140206120000
    DEFINE                                                                      06130000
        GOPERROR(GOPERROR1)=                                                    06140000
        BEGIN                                                                   06150000
            ERROR:=GOPERROR1;                                                   06160000
            GO PERROR;                                                          06170000
        END#,                                                                   06180000
        FIRSTEST=9#, %HEADER INDEX OF FIRST CONF TEST                           06190000
        WRD(WRD1,WRD2)=WHATWORD(TESTBUFFER,WRD1,WRD2)#,                         06200000
        DBUFF=COREADDR(SEGDICT)#;                                   %150106220000
%**************************************************************************06340000
    FORMAT                                                                      06350000
        ENTERDATA("ENTER MAINT CC←"),                                           06360000
        EOFF("=EOF NO LABEL (MAINT)←");                                         06380000
%**************************************************************************06390000
    FILE                                                                        06400000
        TESTAPE 5(1,10),                                                        06400100
        TAPE TAPE (2,10,150), %MASTER SYMBOLIC FILE                             06400200
        PTCH DISK SERIAL(2,10,150),%PATCH FILE ON DISK                          06400300
        CODEFILE DISK SERIAL [1:1024] (2,30,SAVE 10),                           06400400
        NEW DISK SERIAL [20:600] (2,10,150,SAVE 10);                            06400500
```

```
%*************************************************************************06400600
     SWITCH FILE PATCHFILE:=MAINT,PTCH;                                    06400700
%*************************************************************************06410000
     INTEGER                                                               06420000
          PRN,   %PHYSICAL REEL NUMBER OF TAPE....                         06420100
          TAPEDATE,   %CREATION DATE OF TAPE.........                      06420200
          CRD,                                                            06430000
               %USED TO COUNT THE INPUT CARDS                             06430100
          S,                                                              06460000
               %CURRENT SEGMENT NUMBER                                    06460100
          A,                                                              06470000
               %CURRENT RELATIVE ADDRESS                                  06470100
          PP,  %DURING COMPILATION PP IS AS FOLLOWS:                      06471000
               %       CF=INDEX INTO PDESC WHERE NEXT PATTERN             06471100
               %          DESCRIPTION IS TO START                         06471200
               %       FF=LOCATION IN CODEFILE WHERE PDESC[*]             06471300
               %          IS TO BE PLACED WHEN FULL                       06471400
               %                                                          06471500
               %DURING INTERPRETATION PP CONTAINS THE RECORD              06471600
               %NUMBER OF THE RECORD CURRENTLY IN PDESC[*]                06471700
          W,                                                              06480000
               %USED TO STORE LAST RESULT OF WHATWORD ROUTINE             06480100
          CCCOUNT,                                                        06481000
               %NUMBER OF CONTROL CARDS (COMPILE OR EXECUTE ONLY)         06481100
          LEVELCOUNT,                                                     06500000
               %INCREASES BY ONE EACH TIME THAT A DO LOOP OR              06500100
               %SUBROUTINE IS ENTERED - DECREASES BY ONE WHEN             06500200
               %THEY ARE EXITED WHILE COMPILING.                  %140406500300
               %DURING INTERPRETING, LEVELCOUNT HAS THE SAME FUNCTION     06500400
               %BUT IS CALLED SREG WHEN WORKING WITH THE STACK.   %140406500500
          NEXTBUFF,                                                       06510000
               %NUMBER OF BUFFERS DECLARED                                06510100
          TRANS,                                                          06520000
               %TRANSACTION COUNT FOR TAPE UNIT UNDER TEST                06520100
          NEWSWITCH;                                             %140206530000
               %=1 WHEN FILE NEWTAPE IS A TAPE FILE, 0 OTHERWISE          06530100
%*************************************************************************06561000
     LIST SNA(S,A);                                                       06561100
%*************************************************************************06570000
     BOOLEAN                                                              06580000
          TAPEQUATED,                                                     06601000
               %A "*FILE TAPE=" CARD WAS INCLUDED IN CONTROL DECK         06601100
          LIBONLY,                                                        06610000
               %COMPILING FOR SYNTAX ONLY                                 06610100
          SOP,                                                            06620000
               %AN OUTPUT PART HAS BEEN SEEN DURING THIS RUN              06620100
          TAPETEST,                                                       06630000
               %TRUE WHILE RUNNING TAPE CONFIDENCE TESTS                  06630100
          DISKTEST,                                                       06640000
               %TRUE WHILE RUNNING DISK CONFIDENCE TESTS                  06640100
          NTOG,                                                           06660000
               %TRUE WHEN "NEW" OPTION IS SET                             06660100
          HTOG,                                                           06670000
               %TRUE WHEN A COMPILER HEADING HAS BEEN PRINTED             06670100
          ERRTOG,                                                         06690000
               %AN ERROR HAS OCCURED ON THIS RUN                          06690100
          LINERROR,                                                       06710000
               %A SYNTAX ERROR HAS OCCURED ON THE CURRENT CARD            06710100
               %USED TO CONTROL PRINTING OF CARDS ON WHICH ERRORS         06710200
               %OCCUR                                                     06710300
```

```
          DONESCAN,                                                    06730000
               %TRUE WHEN INTERROGATING CARD FILE FOR EOF              06730100
          CMENT,                                                       06740000
               %TRUE WHEN SCANNING A COMMENT IN QUOTES                 06740100
          EOFTOG,                                                      06750000
               %UNEXPECTED EOF ON CARD FILE                            06750100
          PTOG,                                                        06770000
               %THE "TAPE" OR "DISK" OPTION IS SET (COMPILING)         06770100
          DEBUGN,                                                      06771000
               %THE "DEBUGN" OPTION IS SET (COMPILING)                 06771100
          DOLLRE,                                                      06780000
               %TRUE AFTER FIRST CARD IMAGE HAS BEEN PASSED TO         06780100
               %SIMPL COMPILER                                         06780200
          MOD3IOS,                                                     06790000
               %MODEL III I/O CONTROLS                                 06790100
          MAKETAPE,                                                    06800000
               %DURING COMPILATION, MAKETAPE IS TRUE IF A WRITE        06800100
               %OR ERASE STATEMENT HAS BEEN ENCOUNTERED.  DURING       06800200
               %EXECUTION, MAKETAPE SIGNIFIES THAT A SCRATCH TAPE      06800300
               %IS REQUIRED BY THE PROGRAM                             06800400
          UTOG,                                                   %140506801000
               %TRUE IF UNIT CHANGED IN GETHEUNIT                 %140506801100
          DKBTOG,                                                 %140706802000
               %TRUE IF BEGINADDR IS A DKB ADDRESS                %140706802100
          REV;                                                         06810000
               %DURING CONTROL CARD SCANNING, REV INDICATES THAT       06810100
               %THE <OUTPUT PART> APPEARED FIRST.                      06810200
     %*************************************************************************06820000
          LABEL                                                        06830000
               PERROR,                                                 06840000
               CONTROL,                                                06850000
               CONFIDENCE,                                             06860000
               RUNTAPETESTS,                                           06870000
               MCCLCOMPILER,                                           06880000
               FINISHOFF,                                              06890000
               MCCLRUN,                                                06910000
               R1,                                                     06920000
               READIT,                                                 06930000
               RETURN1;                                                06940000
     %*************************************************************************06950000
          ARRAY                                                        06960000
               CCS[0:199],                                             06961000
                                                                       06961005
                    %CONTAINS A COPY OF THE FIRST MAINT CC ("*"-CARDS   06961100
                    %ONLY) AND THE LAST 19 CARDS                       06961200
                                                                       06961300
               COMPAREBUFF[0:60],                                      06970000
                                                                       06970050
                    %USED FOR RESERVED WORD TABLES                     06970100
                                                                       06970200
               HEADER[0:29];                                           06980000
                                                                       06980050
               COMMENT                                                 06980100
               HEADER CONTAINS A COPY OF THE FIRST RECORD IN THE       06980200
               SIMPL CODE FILE.  ITS FORMAT IS AS FOLLOWS:             06980300
               %                                                       06980400
               HEADER[0] = RECORD NUMBER OF BUFFER TABLE IN CODE FILE  06980500
               HEADER[1] = NUMBER OF TAPE UNITS REQUIRED BY SIMPL      06980600
                           PROGRAM                                     06980700
               HEADER[2] = NUMBER OF PATTERNS DECLARED IN PROGRAM      06980800
```

```
HEADER[3] = NUMBER OF CODE SEGMENTS IN PROGRAM                          06980900
HEADER[4] =                                                             06981000
     [CF] = OUTSWITCH (OUTPUT FILE TO BE USED)                          06981100
     [SF] = IF 0 USE STANDARD CARRIAGE WIDTH                            06981200
          = CARRIAGE WIDTH IN WORDS OTHERWISE                           06981300
HEADER[5] =                                                             06981400
   [46:1] = 1, BCL TRANSLATION ON DISPLAY                               06981500
          = 0, INT DISPLAY                                              06981600
   [47:1] = 1, 3-BIT OCTADE DISPLAY                                     06981700
          = 0, 6-BIT CHARACTER DISPLAY                                  06981800
HEADER[6] = NUMBER OF BUFFERS DECLARED                                  06981900
HEADER[7]                                                               06982000
     [CF] = 1, SCRATCH TAPE REQUIRED (NORMAL PROGRAMS ONLY)             06982100
          = 0, LABELED TAPE REQUIRED                                    06982200
     [FF] = 0, EDOC ROWS AND 511 WORDS                                  06982300
          = LENGTH OF EDOC ROWS IF NON-ZERO                             06982400
HEADER[8] = 0, REGULAR PROGRAM                                          06982500
          = NUMBER OF TESTS OTHERWISE                                   06982600
HEADER[20] = 0, TEST DIRECTORY IS LOCATED IN HEADER[9]                  06982700
                THRU HEADER[19]                                         06982800
           = NUMBER OF TESTS OTHERWISE                                  06982900
HEADER[21] = SIMPL STACK SIZE                                           06983000
HEADER[22]=DELAY TIME BETWEEN I/O-S                                     06983005
HEADER[28] = MFID OF TEST TAPE                                          06983100
HEADER[29] = FID OF TEST TAPE                                           06983200
                                                                        06983205
A SIMPL PROGRAM FILE HAS THE FOLLOWING FORMAT                           06983300
                                                                        06983400
HEADER RECORD                                                           06983500
PATTERN DESCRIPTION RECORDS                                             06983600
SIMPL CODE                                                              06983700
BUFFER TABLE                                                            06983800
BUFFER NAME TABLE                                                       06983900
PATTERN NAME TABLE                                                      06984000
PATTERN TABLE                                                           06984100
SEGMENT DICTIONARY                                                %140406984200
UNIT TABLE (REGULAR PROGRAMS ONLY)                                %140406984300
TEST DICTIONARY (CONF PROGRAMS ONLY)                                    06984400
                                                                        06984500
;                                                                       06984600
%*************************************************************************06990000
     SAVE ARRAY UNITS[0:1,0:17], PDESC[0:29];                           07000000
     COMMENT                                                            07000100
          FOR UNITS FORMAT, SEE FILLUNITS BELOW.                        07000200
          PDESC[*] HOLDS ONE PATTERN DESCRIPTION RECORD                 07000300
     ;                                                                  07000400
                                                                        07000500
%*************************************************************************07010000
     PROCEDURE FILLRESERVED(COMPAREBUFF); ARRAY COMPAREBUFF[*];         07020000
          BEGIN                                                         07021000
          UNLOCK(COMPAREBUFF[*]);                                       07022000
          FILL COMPAREBUFF[*] WITH                                      07025000
               "CONFIDEN",%1                                            07030000
               "SKIP    ",%2                                            07035000
               "BEGIN   ",%3                                            07040000
               "END     ",%4                                            07045000
               "SCHEDULE",%5                                            07050000
               "OUTPUT  ",%6                                            07055000
               "ON      ",%7                                            07060000
               "ALL     ",%8                                            07065000
```

```
                    "TESTS    ",%9                                    07070000
                    "TEST     ",%10                                   07075000
                    "EXCEPT   ",%11                                   07080000
                    "TIMES    ",%12                                   07085000
                    "NO       ",%13                                   07090000
                    "STOP     ",%14                                   07095000
                    "ABREVIAT",%15                                    07100000
                    "NOPAGE   ",%16                                   07105000
                    "RESULT   ",%17                                   07110000
                    "LP       ",%18                                   07115000
                    "SPO      ",%19                                   07120000
                    "PBD      ",%20                                   07125000
                    "PBT      ",%21                                   07130000
                    "TWX      ",%22                                   07135000
                    "OK       ",%23                                   07140000
                    "OCT      ",%24                                   07145000
                    "BCL      ",%25                                   07150000
                    "INT      ",%26                                   07155000
                    "TESTAPE  ",%27                                   07160000
                    "EU       ",%28                                   07165000
                    "SU       ",%29                                   07170000
                    "DISK     ",%30                                   07175000
                    "ZONE     ",%31                                   07180000
                    "WAIT     ",%32                                   07190000
                    "NOISE    ",%33                                %140307200000
                    "DELTA    ",%34                                %150107210000
                    "READONLY",%35                                 %150107220000
                    "RO       ",%36                                %150107230000
                    "NODATA   ",%37                                %150107240000
                    "CONF     ",%1                                    07320000
                    "SK       ",%2                                    07330000
                    "B        ",%3                                    07340000
                    "F        ",%4                                    07350000
                    "SCHED    ",%5                                    07360000
                    "OUT      ",%6                                    07370000
                    "O        ",%7                                    07380000
                    "ALL      ",%8                                    07390000
                    "TSTS     ",%9                                    07400000
                    "T        ",%10                                   07410000
                    "X        ",%11                                   07420000
                    "TMS      ",%12                                   07430000
                    "NO       ",%13                                   07440000
                    "ST       ",%14                                   07450000
                    "AB       ",%15                                   07460000
                    "NOPAGE   ",%16                                   07470000
                    "RSLT     ";%17                                   07480000
               LOCK(COMPAREBUFF[*]);                                  07481000
               END;                                                   07482000
%*************************************************************************07500000
     PROCEDURE FILLUNITS;                                              07510000
          BEGIN                                                        07520000
               FILL UNITS[1,*] WITH                                    07530000
                    OCT100000,                                         07540000
                    OCT300001,                                         07550000
                    OCT500002,                                         07560000
                    OCT700003,                                         07570000
                    OCT1100004,                                        07580000
                    OCT1300005,                                        07590000
                    OCT1500006,                                        07600000
                    OCT1700007,                                        07610000
```

```
                OCT2100010,                                                  07620000
                OCT2300011,                                                  07630000
                OCT2500012,                                                  07640000
                OCT2700013,                                                  07650000
                OCT3100014,                                                  07660000
                OCT3300015,                                                  07670000
                OCT3500016,                                                  07680000
                OCT3700017,                                                  07690000
                OCT600022,                                                   07700000
                OCT1400023;                                                  07710000
        COMMENT                                                              07710100
        UNITS[1,U],[1:1] = 1 INDICATES THAT LOGICAL                          07710200
                             UNIT U IS UNDER CONTROL                         07710300
                             OF ONLINE/MAINT;                                07710400
        FILL UNITS[0,*] WITH                                                 07720000
                "MTA    ",                                                   07730000
                "MTB    ",                                                   07740000
                "MTC    ",                                                   07750000
                "MTD    ",                                                   07760000
                "MTE    ",                                                   07770000
                "MTF    ",                                                   07780000
                "MTH    ",                                                   07790000
                "MTJ    ",                                                   07800000
                "MTK    ",                                                   07810000
                "MTL    ",                                                   07820000
                "MTM    ",                                                   07830000
                "MTN    ",                                                   07840000
                "MTP    ",                                                   07850000
                "MTR    ",                                                   07860000
                "MTS    ",                                                   07870000
                "MTT    ",                                                   07880000
                "DKA    ",                                                   07890000
                "DKB    ";                                                   07900000
            END;                                                             07910000
    %*****************************************************************      09030000
        DEFINE                                                               09040000
            WORD=WRD(COMPAREBUFF,54) MOD 37 + 1#;                %150109060000
    %                                                                        09070000
    %*****************************************************************      09360000
        PROCEDURE SCAN; FORWARD;                                             09371000
    %*****************************************************************      09372000
        BOOLEAN PROCEDURE TESTSCHEDULER(NEXTEST); INTEGER NEXTEST;           09373000
            BEGIN                                                            09374000
                                                                             09375000
            COMMENT  HANDLES THE <SCHEDULE PART> OF CONFIDENCE               09376000
                     CONTROL CARDS;                                          09377000
                                                                             09378000
            INTEGER I,N;                                                     09379000
            BOOLEAN RO;                                          %150109379100
            DEFINE RL=REAL#;                                     %150109379200
            LABEL LOOP,NR,REP,FINDMODIFIERS,XLOOP,ABORNO,E,LOOK;             09380000
            DEFINE ERR(ERR1)=BEGIN ERROR:=ERR1; GO E; END#;                  09381000
            %                                                                09382000
            N:=NEXTEST;                                                      09383000
        LOOP:                                                                09384000
            SCAN;                                                            09385000
            IF SPECIALCHR=")" THEN GO LOOK;                                  09385100
            IF RO:=RO OR (35 LEQ W:=WORD LEQ 36) THEN %READONLY  %150109385200
               BEGIN                                             %150109385300
               IF N NEQ 0 THEN ERR(50);IF NOT DISKTEST THEN ERR(53); %150109385400
```

```
                SCAN;W:=WORD;                                          %150109385500
                END;                                                   %150109385600
            IF W=10 OR W=9 THEN                                        %150109386000
                BEGIN                                                      09387000
                SCAN;                                                      09388000
                GO NR;                                                     09389000
                END;                                                       09390000
            IF W=8 THEN %ALL                                               09391000
                BEGIN                                                      09392000
                IF RO THEN ERR(50);                                    %150109392100
                FOR I:=1 STEP 1 UNTIL NUMBEROFTESTS DO                     09393000
                    BEGIN                                                  09394000
                    IF N GTR 63 THEN ERR(44);                              09395000
                    TESTARRAY[N]:=1&I[CTF];                                09396000
                    IF DISKTEST THEN TWOSET(I,TESTMASK);               %150109397000
                    N:=N+1;                                                09398000
                    END;                                                   09399000
                SCAN;                                                      09401000
                IF WORD=9 THEN SCAN;                                       09402000
                IF WORD=11 THEN   %EXCEPT                                  09403000
                    BEGIN                                                  09404000
                    SCAN;                                              %140709404100
                    IF WORD=9 THEN                                     %140709405000
XLOOP:                                                                     09406000
                    SCAN;                                                  09407000
                    IF WORD=10 THEN SCAN;  %TEST                           09408000
                    IF COUNT GEQ 0 THEN ERR(12);                           09409000
                    IF NT1:=TESTBUFFER[0] GTR NUMBEROFTESTS OR NT1=0       09410000
                        THEN ERR(23);                                      09411000
                    TESTARRAY[NEXTEST+NT1-1]:=0;                           09412000
                    IF DISKTEST THEN                                       09412100
                        BEGIN                                              09412200
                        NT2:=0;                                            09412300
                        FOR NT3:=NEXTEST-1 STEP -1 UNTIL 0 DO              09412400
                            IF TESTARRAY[NT3].[27:6]=NT1 THEN              09412500
                            NT2:=1;                                        09412600
                        IF NOT BL(NT2) THEN RESET(NT1,TESTMASK);       %150109412700
                        END;                                               09412800
                    SCAN;                                                  09413000
                    IF SPECIALCHR="," THEN GO XLOOP;                       09414000
                    END;                                                   09415000
                END ELSE                                                   09416000
            IF SPECIALCHR="(" THEN IF RO THEN ERR(51) ELSE             %150109417000
                IF TESTSCHEDULER(N) THEN GO E ELSE SCAN ELSE               09418000
NR:         IF COUNT LSS 0 THEN                                            09419000
                BEGIN                                                      09420000
                IF NT1:=TESTBUFFER[0] GTR NUMBEROFTESTS OR NT1=0 THEN      09421000
                    ERR(23);                                               09422000
                IF RO THEN                                             %150109422100
                   IF RL(BL(ENTIER(2*NT1)) AND BL(3"42520"))=0 THEN    %150109422200
                    ERR(52);                                           %150109422300
                IF N GTR 63 THEN ERR(44);                                  09423000
                TESTARRAY[N]:=1&NT1[CTF]&RL(RO)[4:47:1];               %150109424000
                IF DISKTEST THEN IF RO THEN                            %150109424100
                   TWOSET(NT1,ROMASK) ELSE TWOSET(NT1,TESTMASK);       %150109424150
                N:=N+1;                                                    09425000
                SCAN;                                                      09426000
                END ELSE ERR(12);                                          09427000
            IF SPECIALCHR="," OR SPECIALCHR=")" THEN GO LOOK;              09427100
FINDMODIFIERS;                                                             09428000
```

```
            IF SPECIALCHR="x" THEN                                          09429000
                BEGIN                                                       09430000
                SCAN;                                                       09431000
                IF JUNKB:=COUNT GEQ 0 THEN ERR(11);                         09432000
REP:                                                                        09433000
                IF NT1:=TESTBUFFER[0] LEQ EMPTY AND NT1 GTR 0 THEN          09434000
                    BEGIN                                                   09435000
                    FOR I:=N-1 STEP -1 UNTIL NEXTEST DO                     09436000
                    IF NT2:=TESTARRAY[I].[CF] GTR 0 THEN                    09437000
                        IF NT2=1 THEN                                       09438000
                          TESTARRAY[I].[CF]:=NT1                            09439000
                        ELSE ERR(14);                                       09440000
                    END                                                     09441000
                ELSE ERR(14);                                               09442000
                IF JUNKB THEN                                               09443000
                    BEGIN                                                   09444000
                    SCAN;                                                   09445000
                    IF WORD NEQ 12 THEN ERR(10);                            09446000
                    END;                                                    09447000
                END ELSE                                                    09448000
            IF JUNKB:=COUNT < 0 THEN GO REP;                    %150109449000
            IF W:=WORD = 37 THEN      %NODATA                   %150109449100
                BEGIN                                           %150109449200
                NT3:=1;                                         %150109449300
                GO ABORNO;                                      %150109449400
                END;                                            %150109449500
            IF W = 13 THEN            %NO                       %150109450000
                BEGIN                                                       09451000
                NT3:=4;                                         %150109452000
ABORNO:                                                                     09453000
                FOR I:=N-1 STEP -1 UNTIL NEXTEST DO                         09454000
                    BEGIN                                                   09455000
                    IF TESTARRAY[I].[1:3] NEQ 0 THEN ERR(22);   %150109456000
                    TESTARRAY[I].[1:3]:=NT3;                    %150109457000
                    IF (NT1:=TESTARRAY[I].[27:6]) MOD 10 = 3 THEN %150109457010
                      BEGIN                                     %150109457020
                      TWOSET(NT1,NOMASK); NT2:=1;               %150109457030
                      FOR NT4:= NEXTEST-1 STEP -1 UNTIL 0 DO    %150109457040
                          IF (NT5:=TESTARRAY[NT4]).[27:6]=NT1 THEN      09457050
                              IF NT5.[1:3] = 0 THEN             %150109457060
                                  NT4:=NT2:=0;                  %150109457070
                      IF BL(NT2) THEN RESET(NT1,TESTMASK);  %1501   09457080
                      END;                                      %150109457090
                    END;                                                09457100
                END ELSE                                                09457200
            IF W=15 THEN %ABREVIATE                                     09458000
                BEGIN                                                   09459000
                NT3:=2;                                         %150109460000
                GO ABORNO;                                              09461000
                END ELSE                                                09462000
            IF W=33 THEN %NOISE                                 %140309462100
                BEGIN                                           %140309462200
                NT3:=6;                                         %150109462300
                GO ABORNO;                                      %140309462400
                END ELSE                                        %140309462500
            IF W=32 THEN %WAIT                                          09463000
                BEGIN                                                   09464000
                SCAN;                                                   09465000
                IF COUNT GEQ 0 THEN ERR(45);                            09466000
                IF NT1:=TESTBUFFER[0] GTR 511 THEN ERR(46);             09467000
```

```
                FOR I:=N-1 STEP -1 UNTIL NEXTEST DO                                    09468000
                    BEGIN                                                              09469000
                    IF TESTARRAY[I].[18:9] GTR 0 THEN ERR(47);                         09470000
                    TESTARRAY[I].[18:9]:=NT1;                                          09471000
                    END;                                                               09472000
                END ELSE ERR(24);                                                      09473000
            SCAN;                                                                      09473100
            IF SPECIALCHR=")" OR SPECIALCHR="," THEN                                   09474000
                BEGIN                                                                  09475000
        LOOK:                                                                          09475100
                NEXTEST:=N;                                                            09476000
                IF SPECIALCHR="," THEN GO LOOP;                                        09477000
                END                                                                    09478000
            ELSE GO FINDMODIFIERS;                                                     09479000
            IF DISKTEST THEN                                                %150109479100
               IF ((TWOT(2,TESTMASK) AND SEGS < 2) OR                       %150109479200
                   (TWOT(12,TESTMASK) AND SEGS < 30)) THEN ERR(28);         %150109479300
            IF FALSE THEN                                                              09481000
        E:      TESTSCHEDULER:=TRUE;                                                   09482000
            END OF TESTSCHEDULER;                                                      09484000
    %*************************************************************************09490000
        PROCEDURE PRINTCCARDS(CCS,CCCOUNT,TOG); VALUE TOG;                  %150109490100
            ARRAY CCS[*]; INTEGER CCCOUNT;                                  %150109490200
            BOOLEAN TOG;                                                    %150109490300
            COMMENT  PRINTS THE FIRST 10×CCCOUNT WORDS OF CCS[*].           %150109490400
                     WILL PRINT CCS 10 WORDS AT A TIME TO EITHER            %150109490500
                     LINE (TOG TRUE) OR OUTFI.  THE ACTUAL PARAMETER        %150109490600
                     PASSED AS CCCOUNT IS SET TO ZERO AFTER THE             %150109490700
                     PRINTING IS COMPLETED;                                 %150109490800
            BEGIN                                                           %150109490900
            INTEGER I;                                                      %150109491000
        %                                                                   %150109491100
            FOR I:=0 STEP 1 UNTIL CCCOUNT DO                                %150109491200
                BEGIN                                                       %150109491300
                IF I NEQ 0 THEN MOVE(10,CCS[I×10],CCS);                     %150109491400
                IF TOG THEN                                                 %150109491500
                    WRITE(LFILE[DBL],10,CCS[*])                             %150109491600
                ELSE WRITE(OUTFI[DBL],10,CCS[*]);                           %150109491700
                END;                                                        %150109491800
            CCCOUNT:=0;                                                     %150109491900
            END;                                                            %150109492000
    %*************************************************************************10840000
        PROCEDURE CONTROLCARDERROR;                                         %150110840100
            BEGIN                                                           %150110840200
        %*************************************************************************10840300
        STREAM PROCEDURE ERROUT(OUTBUFFER,COUNT,                                   10850000
            FIRSTSCAN,MAINT,COL,ERRBUFF,ERROR);                                    10860000
            VALUE COUNT,FIRSTSCAN,MAINT,COL,ERROR;                                 10870000
            COMMENT  SPOUTS MAINTENANCE CC ERROR MSGS;                             10870100
            BEGIN                                                                  10880000
                DI:=OUTBUFFER;                                                     10890000
                DS:=14 LIT "#MAINT CC ERR(";                                       10900000
                SI:=ERRBUFF;                                                       10910000
                ERROR(SI:=SI+16);                                                  10920000
                16(IF SC="%" THEN                                                  10930000
                    BEGIN SI:=SI+1; DS:=LIT """; END                               10940000
                ELSE IF SC="*" THEN JUMP OUT ELSE DS:=CHR);                        10950000
                DS:=5 LIT ")CRD ";                                                 10960000
                SI:=LOC MAINT; DS:=2 DEC; DS:=LIT "!"; DS:=2 DEC;                  10970000
                DS:=LIT "[";                                                       10980000
```

```
            SI:=FIRSTSCAN; DS:=COUNT CHR;                                   10990000
            DS:=LIT "]";                                                    11000000
            DS:=LIT "←";                                                    11030000
        END;                                                              %150111030100
    %*****************************************************************11030200
        IF WORD NEQ 14 THEN                                               %150111030300
        BEGIN                                                             %150111030400
            IF ERRCR LEQ 29 THEN                                          %150111030500
            BEGIN                                                         %150111030600
            FILL JUNKBUFFER[*] WITH                                       %150111030700
                "INV 1ST ","WD*      ",                                   %150111030800
                "NO %(%* ","."       ",                                   %150111030900
                "NO DSK A","DDR*     ",                                   %150111031000
                "NO %:%* ","."       ",                                   %150111031100
                "NO END* ","."       ",                                   %150111031200
                "NO SCHED","**       ",                                   %150111031300
                "XTRA TRA","NS*      ",                                   %150111031400
                "XTRA OU*","."       ",                                   %150111031500
                "INV OU* ","."       ",                                   %150111031600
                "DUP TEST","#*       ",                                   %150111031700
                "NO %TIME","S%*      ",                                   %150111031800
                "NO ×INT*","."       ",                                   %150111031900
                "NO TEST#","**       ",                                   %150111032000
                "INV EXCE","PT*      ",                                   %150111032100
                "INV TIME","S*       ",                                   %150111032200
                "NO TESTS","**       ",                                   %150111032300
                "INV SCHE","D*       ",                                   %150111032400
                "XTRA %AL","L%*      ",                                   %150111032500
                "XTRA EXC","EPT*     ",                                   %150111032600
                "NO %ALL%","**       ",                                   %150111032700
                "NO EXCEP","T*       ",                                   %150111032800
                "INV %NO%","**       ",                                   %150111032900
                "XTRA %NO","%*       ",                                   %150111033000
                "INV TEST","#*       ",                                   %150111033100
                "NO %,%* ","."       ",                                   %150111033200
                "INV DSK ","ADDR*    ",                                   %150111033300
                "NO %#%* ","."       ",                                   %150111033400
                "INV REQU","EST*     ",                                   %150111033500
                "INSUF SE","GS*      ",                                   %150111033600
                "INV UNIT","**       ";                                   %150111033700
            END ELSE                                                      %150111033800
            BEGIN                                                         %150111033900
            IF ERROR:=ERROR-30=4 THEN COUNT:=SPECIALCHR:=0;               %150111034000
            FILL JUNKBUFFER[*] WITH                                       %150111034100
                "INV CC* ","."       ",                                   %150111034200
                "INV CHR*","."       ",                                   %150111034300
                "NO OU*  ","."       ",                                   %150111034400
                "INV LABE","L EQUAT*",                                    %150111034500
                "INCOMPLE","TE CC*   ",                                   %150111034600
                "INV PROG"," NAME*   ",%35                                %150111034700
                "NO EU NR","**       ",%36                                %150111034800
                "INV EU N","R*       ",%37                                %150111034900
                "NO SU NR","**       ",%38                                %150111035000
                "INV SU N","R*       ",%39                                %150111035100
                "NO DISK ","NR*      ",%40                                %150111035200
                "INV DISK"," NR*     ",%41                                %150111035300
                "NO ZONE ","NR*      ",%42                                %150111035400
                "INV ZONE"," NR*     ",%43                                %150111035500
                "TOO MANY"," TESTS*  ",%44                                %150111035600
                "NO WAIT ","TIME*    ",%45                                %150111035700
```

```
                    "INV WAIT","  TIME*   ",%46                          %150111035800
                    "DUP WAIT","  TIME*   ",%47                          %150111035900
                    "INV DFCU","*         ",%48                          %150111036000
                    "DFCU NOT","  READY*  ",%49                          %150111036100
                    "1 TST ON","LY ON RO",%50                            %150111036110
                    "INV RO S","CHED*     ",%51                          %150111036120
                    "INV RO T","TEST #*  ",%52                           %150111036130
                    "RO INV O","N TAPE*  ";%53                           %150111036140
               END;                                                      %150111036200
               ERROUT(OUTBUFFER,ABS(COUNT)+                              %150111036300
                    REAL(SPECIALCHR NEQ 0),FIRSTSCAN,CRD,                %150111036400
                    8*(FIRSTSCAN.[33:15]-COREADDR(INPUTBUFFER))+         %150111036500
                    FIRSTSCAN.[27:6]+1,JUNKBUFFER,ERROR);                %150111036600
               WRITE(CFILE,9,OUTBUFFER[*]);                              %150111036700
          END;                                                           %150111036800
          END;                                                                11050000
%*************************************************************************11050100
     STREAM PROCEDURE ROTATE(BUFF,JUNK,N,LENGTH); VALUE BUFF,N,LENGTH;       11050200
                                                                             11050203
          COMMENT  ROTATES THE CHARACTERS IN A BUFFER IN A                   11050205
                   CIRCULAR FASHION.  BUFF CONTAINS THE                      11050210
                   CORE ADDRESS OF THE BUFFER.  JUNK IS                      11050215
                   PASSED BY NAME AND IS USED FOR TEMPORARY                  11050220
                   STORAGE.  AT LEAST N CHARACTERS ARE REQUIRED              11050225
                   AT JUNK.  LENGTH SPECIFIES THE LENGTH OF                  11050230
                   THE BUFFER IS CHARACTERS;                                 11050235
                                                                             11050240
          BEGIN LOCAL L,NN,NNN,LL;                                           11050300
          SI:=LOC LENGTH;DI:=LOC L; SI:=SI+6; DI:=DI+7; DS:=CHR;             11050400
          SI:=LOC N; DI:=LOC NN; SI:=SI+6; DI:=DI+7; DS:=CHR;                11050500
          SI:=LOC N; SI:=SI+5; DI:=LOC NNN; DI:=DI+7; DS:=CHR;               11050600
          SI:=LOC LENGTH; SI:=SI+5; DI:=LOC LL; DI:=DI+7; DS:=CHR;           11050700
          DI:=JUNK; SI:=BUFF;                                                11050800
          NNN(8(16(DS:=32 CHR)));                                            11050900
          NN(DS:=32 CHR; DS:=32 CHR); DS:=N CHR; DI:=BUFF;                   11051000
          LL(8(16(DS:=32 CHR)));                                             11051100
          L(DS:=32 CHR; DS:=32 CHR); DS:=LENGTH CHR;                         11051200
          SI:=JUNK; DI:=BUFF;                                                11051300
          LL(8(16(DI:=DI+32)));                                              11051400
          L(DI:=DI+32; DI:=DI+32); DI:=DI+LENGTH;                            11051500
          NNN(8(16(DS:=32 CHR)));                                            11051600
          NN(DS:=32 CHR; DS:=32 CHR); DS:=N CHR;                             11051700
          END;                                                               11051800
     $SET OMIT=OMITINTERPRETER                                               11051899
%*************************************************************************11051900
     STREAM PROCEDURE BUFFERSHIFT(S,A,B,N,RT,HETO);                          11052000
          VALUE S,A,B,N,RT,HETO;                                             11052100
                                                                             11052103
          COMMENT  BUFFERSHIFT WILL SHIFT THE CONTESTS OF                    11052105
                   A BUFFER RIGHT OR LEFT BY S CHARACTERS.                   11052110
                   HETO DETERMINES IF THE RESULTING PATTERN                  11052115
                   IS TO BE LEFT IN THE ORIGINAL BUFFER                      11052120
                   (HETO=0) OR GENERATED IS A SEPARATE BUFFER                11052125
                   (HETO=1).  A CONTAINS THE ADDRESS OF                      11052130
                   THE BUFFER BEING SHIFTED.  B CONTAINS                     11052135
                   THE ADDRESS OF THE BUFFER IN WHICH THE RESULT             11052140
                   IS TO BE PLACED (A=B IF HETO=0).  RT=1 IF                 11052145
                   THE SHIFT IS TO THE RIGHT AND =0 IF SHIFT IS              11052150
                   LEFT.  N SPECIFIES THE LENGTH OF THE BUFFER               11052155
                   IN CHARACTERS MINUS S;                                    11052160
```

```
                                                                        11052165
            BEGIN LOCAL NN,SS,SSS,NNN; LABEL XIT;                       11052200
            SI:=LOC N; SI:=SI+6; DI:=LOC NN; DI:=DI+7; DS:=CHR;         11052300
            SI:=LOC S; SI:=SI+6; DI:=LOC SS; DI:=DI+7; DS:=CHR;         11052400
            SI:=A; DI:=B;                                               11052500
            RT(SSS(8(16(DI:=DI+32))); SS(DI:=DI+32; DI:=DI+32);         11052600
               DI:=DI+S;                                                11052700
               NNN(8(16(DS:=32 CHR)));                                  11052800
               NN(DS:=32 CHR; DS:=32 CHR); DS:=N CHR;                   11052900
               HETO(SI:=A; DI:=B;                                       11053000
                    SSS(8(16(DS:=32 CHR)));                             11053100
                    SS(DS:=32 CHR; DS:=32 CHR); DS:=S CHR);             11053200
               JUMP OUT TO XIT);                                        11053300
            SSS(8(16(SI:=SI+32)));                                      11053400
            SS(SI:=SI+32; SI:=SI+32); SI:=SI+S;                         11053500
            NNN(8(16(DS:=32 CHR)));                                     11053600
            NN(DS:=32 CHR; DS:=32 CHR); DS:=N CHR;                      11053700
            HETO(SI:=A;                                                 11053800
                 NNN(8(16(SI:=SI+32)));                                 11053900
                 NN(SI:=SI+32; SI:=SI+32); SI:=SI+N;                    11054000
                 SSS(8(16(DS:=32 CHR)));                                11054100
                 SS(DS:=32 CHR; DS:=32 CHR); DS:=S CHR);                11054200
        XIT: END;                                                       11054300
    $POP OMIT                                                           11054301
    %*******************************************************************11060000
        BOOLEAN PROCEDURE TESTADDRESS(ADDR); VALUE ADDR;                11070000
            INTEGER ADDR;                                               11080000
                                                                        11080005
            COMMENT  RETURNS TRUE IF ADDR IS AN INVALID DISK            11080100
                     ADDRESS.                                           11080105
                                                                        11080110
                     WARNING-----THIS ROUTINE WIPES OUT                 11080115
                                 TESTBUFFER[0]---------                 11080120
                                                                        11080125
                     ;                                                  11080130
            BEGIN                                                       11090000
            REAL I;                                                     11100000
                 TESTADDRESS:=(I:=DECMAL(ADDR)).[6:6] GTR 9 OR          11110000
                 I.[12:6] GTR 3 OR BOOLEAN(DISKIO(TESTBUFFER,-0,        11120000
                 ADDR).[27:1]);                                         11130000
            END;                                                        11140000
    %*******************************************************************11150000
        PROCEDURE CLEARAREA;                                            11160000
            BEGIN                                                       11170000
                                                                        11170005
            COMMENT  CLEARAREA IS CALLED BEFORE ANY READ/WRITE          11170100
                     DISKTESTS ARE RUN.  IT DETERMINES IF THE           11170105
                     AREA ON DISK FROM "BEGINADDR" THRU "ENDADDR"       11170110
                     CONTAINS ANY LOCKED OUT AREAS.  IF SO              11170115
                     MESSAGES INDICATING THE LOCKED OUT AREAS           11170120
                     ARE PRINTED AND THE USER IS ASKED IF               11170125
                     HE WISHES TO "SKIP" OR "STOP".  IF HE              11170130
                     ELECTS TO SKIP, "WRTLOCK" IS SET TO TRUE           11170135
                     INDICATING THAT A PORTION OF THE TEST AREA         11170140
                     IS LOCKED OUT.  NO NORMAL SEG WRITE TESTS          11170145
                     WILL BE PERFORMED.  READ TESTS (IF ANY ARE         11170150
                     SCHEDULED) WILL BE RUN IN THE ENTIRE AREA.         11170155
                     IF THE ENTIRE AREA IS NOT LOCKED OUT, THE          11170160
                     MAINTENANCE SEGMENT WRITE TESTS WILL BE            11170165
                     RUN IN THOSE AREAS NOT LOCKED OUT.  IF             11170170
```

```
THE USER WISHES TO "STOP" THE PROGRAM                                  11170175
BRANCHES BACK TO RETURN.                                               11170180
                                                                       11170185
IF NO LOCKOUT PROBLEMS ARE ENCOUNTERED AND                             11170190
NORMAL SEGMENT WRITE TESTS ARE REQUESTED,                              11170195
A CALL IS MADE ON THE MCP ROUTINE "DKBUSINESS".                        11170200
THE PARAMETER PASSED TO THAT ROUTINE                                   11170205
IS AS FOLLOWS:                                                         11170210
                                                                       11170215
     [1:1]  =1                                                         11170216
     [15:15]=ADDRESS OF MEMORY LOCATION                                11170220
            USED TO WAKE UP ONLINE/MAINT                               11170225
            WHEN DKBUSINESS FINISHES.                                  11170230
            MCP WILL PLACE THE VALUE                                   11170235
            1 IN THAT LOCATION WHEN                                    11170240
            FINISHED UNLESS MCP HAS BEEN                               11170245
            COMPILED WITH SHARDISK SET AND                             11170250
            CHANGE ALLOWING XD ON SHAREDISK                            11170255
            HAS NOT BEEN INCLUDED.  IN THE                             11170260
            LATER CASE, A 3 IS PLACED IN                               11170265
            THE WORD.                                                  11170270
     [30:3] =0                                                         11170275
     [33:15]=ADDRESS OF 10-WORD ARRAY                                  11170280
                                                                       11170285
     WORD 0 OF THE ARRAY CONTAINS THE                                  11170290
            BEGINNING DISK ADDRESS                                     11170295
                                                                       11170300
     WORD 1 CONTAINS THE NUMBER OF SEGS TO                             11170305
            BE TESTED                                                  11170310
                                                                       11170315
     THE MCP BUILDS A MESSAGE IN THE ARRAY                             11170320
     JUST AS IT WOULD IN RESPONSE TO AN                                11170325
     XD MESSAGE.  THE STREAM PROCEDURE                                 11170330
     "CLEARED" EXAMINES THE MESSAGE TO DETERMINE                       11170335
     IF THE MCP WAS ABLE TO CREATE A "DKTEST"                          11170340
     FILE IN THE AREA.                                                 11170345
                                                                       11170350
IF THE "XD" ACTION IS SUCCESSFUL, THE                                  11170355
ROUTINE IS EXITED.  OTHERWISE, THE                                     11170360
MESSAGE PLACED IN "INPUTBUFFER" BY                                     11170365
"DKBUSINESS" IS DEBLANKED AND MOVED                                    11170370
TO "OUTBUFFER" BY THE PROCEDURE "DEBLANKER"                            11170375
BELOW.  THE MESSAGE IS THEN WRITTEN ON                                 11170380
THE SPO OR REMOTE TERMINAL.  THE USER IS                               11170385
THEN GIVEN THE OPTION OF ENTERING "SKIP",                              11170390
"STOP", OR "OK".  IF "SKIP" IS ENTERED,                                11170395
NO NORMAL SEGMENT WRITE TESTS WILL BE                                  11170400
PERFORMED.  ANY OTHER TESTS SCHEDULED WILL                             11170405
BE RUN, HOWEVER.  IF "STOP" IS ENTERED,                                11170410
THE PROGRAM BRANCHES TO "RETURN".                                      11170415
IF "OK" IS ENTERED, THE CALL ON "DKBUSINESS"                           11170420
IS REPEATED (ASSUMEDLY, THE USER HAS REMOVED                           11170425
FILES FROM THE AREA BEFORE ENTERING THE "OK").                         11170430
                                                                       11170435
;                                                                      11170440
$SET OMIT=OMITDISKTESTS OR DEBUG                                       11179999
        LABEL TRYGREATE,KBD,XIT;                                       11180000
        REAL BUFF,ADDR,SLEEPER,JUNK;                                   11190000
        FORMAT LOF("SEGS ",I8," TO ",I8," LOCKED OUT",                 11200000
                   " (EU ",I2," - SW ",I2,")",                         11210000
```

```
                    "←"),                                                    11220000
                  NOTAVAILF("NORMAL SEG WRITE TESTS NOT AVAIL",              11230000
                        " WITH SHAREDISK"),                    %140411240000
                  ALREADY(" TEST AREA ALREADY CLEARED(IN USE BY ",  %140411250000
                        A6,"/",A1,A6,")");                                   11260000
          INTEGER I;                                                         11300000
          BOOLEAN SD;                                                        11310000
      %*****************************************************************    11320000
          BOOLEAN STREAM PROCEDURE CLEARED(BUFF);                            11330000
          BEGIN                                                              11340000
          LOCAL TEMP,TSI;                                                    11350000
          LABEL L;                                                           11360000
               SI:=BUFF; IF SC=" " THEN                                      11370000
               BEGIN SI:=SI+1; IF SC="D" THEN TALLY:=1; END ELSE             11380000
               BEGIN                                                         11390000
                    SI:=SI+39; TSI:=SI;                                      11400000
                    DI:=LOC TEMP; DS:=6 LIT "DKTEST";                        11410000
                    DI:=DI-6;                                                11420000
                    IF 6 SC=DC THEN                                          11430000
          L:        BEGIN                                                    11440000
                         TEMP:=TALLY;                                        11450000
                         DI:=DI-6; SI:=SI+1;                                 11460000
                         IF 7 SC GEQ DC THEN                                 11470000
                         BEGIN                                               11480000
                              TALLY:=3; SI:=TSI; DI:=BUFF;                   11490000
                              DS:=2 LIT "0"; DS:=6 CHR;                      11500000
                              SI:=SI+1; DS:=LIT "0"; DS:=7 CHR;              11510000
                         END;                                                11520000
                    END ELSE                                                 11530000
                    BEGIN                                                    11540000
                         DI:=LOC TEMP; DS:=6 LIT "BADISK"; DI:=DI-6;         11550000
                         SI:=TSI; IF 6 SC=DC THEN GO L;                      11560000
                    END;                                                     11570000
               END;                                                          11580000
               CLEARED:=TALLY;                                               11590000
          END;                                                               11600000
      %*****************************************************************    11610000
          STREAM PROCEDURE DEBLANKER(A,B);                                   11620000
          BEGIN LABEL L,BB;                                                  11630000
               SI:=A; DI:=B; DS:=CHR;                                        11640000
          L:   IF SC NEQ "←" THEN                                            11650000
               BEGIN                                                         11660000
          BB:       IF SC=" " THEN                                         11670000
                    BEGIN                                                    11680000
                         SI:=SI+1;                                           11690000
                         IF SC=" " THEN GO BB;                               11700000
                         IF SC=ALPHA THEN                                    11710000
                         BEGIN SI:=SI-1; DS:=CHR; END;                       11720000
                         GO L;                                               11730000
                    END;                                                     11740000
                    DS:=CHR; GO L;                                           11750000
               END;                                                          11760000
               DS:=LIT "←";                                                  11780000
          END;                                                               11800000
      %*****************************************************************    11810000
               LOCKWORD:=0;                                                  11811000
               IF REAL((TESTMASK AND NOT ROMASK) AND              %150111812000
                    BL(3"57762")) NEQ 0 THEN                      %150111813000
               NOWRT:=WRTLOCK:=FALSE;                                        11820000
               FOR ADDR:=10000×(BEGINADDR DIV 10000) STEP 10000 UNTIL        11830000
```

```
                10000×(ENDADDR DIV 10000)+9999 DO                                11840000
                IF BOOLEAN(DISKIO(TESTBUFFER,0,ADDR),[28:1]) THEN                11850000
                BEGIN                                                            11860000
                     TWOSET((ADDR DIV 10000) MOD 100,LOCKWORD);                  11861000
                     WRITE(CFILE,LOF,ADDR,ADDR+9999,                             11870000
                          ADDR DIV 1000000,                                      11880000
                     ((I:=(ADDR DIV 10000) MOD 100) MOD 4)+                      11890000
                     ((I DIV (4×DKTYPE))×4)+1);                                  11900000
                     WRTLOCK:=TRUE;                                              11910000
                END;                                                             11920000
                IF WRTLOCK THEN GO KBD;                                          11930000
                FOR I:=2,3,8,9,10,11,12,13,14 DO                        %150111940000
                WRTLOCK:=WRTLOCK OR TWOT(I,TESTMASK OR ROMASK);          %150111950000
                IF WRTLOCK THEN WRTLOCK:=FALSE ELSE GO XIT;                      11960000
                BUFF:=-(ADDR:=COREADDR(SLEEPER))&COREADDR(INPUTBUFFER[1])11970000
                [15:33:15];                                                      11980000
           TRYCREATE:                                                            11990000
                INPUTBUFFER[0]:=BEGINADDR;                                       12000000
                INPUTBUFFER[1]:=SEGS;                                   %150112010000
                SLEEPER:=0; DKBUSINESS(BUFF);                                    12020000
                IF SD:=SLEEPER=3 THEN                                            12030000
                BEGIN                                                            12040000
                     WRITE(CFILE,NOTAVAILF);                                     12050000
                     GO KBD;                                                     12060000
                END ELSE                                                         12070000
                BEGIN                                                            12080000
                     DEBLANKER(INPUTBUFFER,OUTBUFFER);                           12090000
                     IF REAL(AREACLEARED:=CLEARED(OUTBUFFER)) LSS 3 THEN 12100000
                     WRITE(CFILE,10,OUTBUFFER[*]) ELSE                           12110000
                     WRITE(CFILE,ALREADY,OUTBUFFER[0],(JUNK:=                    12120000
                          OUTBUFFER[1]).[6:6],JUNK);                             12130000
                END;                                                             12140000
                IF NOT AREACLEARED THEN                                          12150000
                BEGIN                                                            12160000
           KBD:                                                                  12170000
                     IF JUNK:=SKIPSTOPOROK(NOT(WRTLOCK OR SD),TRUE)=2            12180000
                          THEN GO RETURN ELSE                                    12190000
                     IF JUNK=1 THEN                                              12200000
                          BEGIN NOWRT:=TRUE;GO XIT;END ELSE                      12210000
                     IF JUNK=3 THEN GO TRYCREATE ELSE                            12220000
                          GO KBD;                                                12230000
                END;                                                             12350000
           XIT:                                                          %140412355000
      $POP OMIT                                                                  12355001
                END OF CLEARAREA;                                                12360000
      %**************************************************************************12370000
                STREAM PROCEDURE CLEANMOVE(A,B);                                 12370200
                     BEGIN                                                       12370300
                                                                                 12370305
                COMMENT  CLEANMOVE IS USED TO MOVE CHARACTERS FROM               12370310
                     A TO B.  TRANSFER CONTINUES UNTIL A LEFT                    12370315
                     ARROW IS INCOUNTERED IN THE SOURCE STRING;                  12370320
                     LABEL L;                                                    12370400
                     DI:=B; DS:=8 LIT " "; SI:=B; DS:=9 WDS;             %140112370500
                     SI:=A; DI:=B;                                               12370600
                L:   IF SC NEQ "←" THEN BEGIN DS:=CHR; GO L; END;                12370700
                     END;                                                        12370800
      %**************************************************************************12371000
           BOOLEAN PROCEDURE SAFESCAN;                                           12380000
                                                                                 12380005
```

```
            COMMENT USED TO SCAN CONTROL CARDS AND DOLLAR CARDS                12390000
                    TRUE IF   1)  END OF CARD IS REACHED, OR                   12400000
                              2)  A SEMICOLON IS ENCOUNTERED, OR               12410000
                              3)  A PERCENT SIGN IS ENCOUNTERED                12410100
                                  ON A DOLLAR CARD                             12410200
            ;                                                                  12410300
            BEGIN                                                              12410400
            LABEL BACK,EOF;                                                    12420000
                FIRSTSCAN:=LASTSCAN;                                           12430000
        BACK:                                                                  12431000
                SAFESCAN:=(COUNT:=SCANIT) GTR 16 OR                            12440000
                    SPECIALCHR=";" OR                                          12450000
                    (COMPILING AND SPECIALCHR="%") OR                          12450100
                    SPECIALCHR=".";                                            12450200
                IF SPECIALCHR="." THEN FIRSTSCAN:=LASTSCAN:=INP+10;            12450300
                IF SPECIALCHR="-" AND NOT COMPILING THEN                       12450400
                    BEGIN                                                      12450500
                    FIRSTSCAN:=LASTSCAN:=INP;                                  12450600
                    READ(INFILE,10,INPUTBUFFER[*])[EOF];                       12450700
                    ACCUMULATOR:=COREADDR(JUNKBUFFER);                         12450800
                    CRD:=CRD+1;                                                12450900
                    IF CCCOUNT=19 THEN CCCOUNT:=0;                             12451000
                    CLEANMOVE(INPUTBUFFER,CCS[(CCCOUNT:=                       12451100
                        CCCOUNT+1)*10]);                                       12451200
                    GO BACK;                                                   12451300
                EOF:                                                           12451400
                    EOFTOG:=TRUE;                                              12451500
                    GO PERROR;                                                 12451600
                    END;                                                       12451700
            END;                                                               12460000
        $SET OMIT=OMITCOMPILER                                                 12469999
        %******************************************************************    12470000
            INTEGER PROCEDURE DOLLARCARD;                                      12480000
            BEGIN                                                              12490000
                                                                               12490003
                COMMENT  HANDLES DOLLAR CARDS DURING SIMPL COMPILATION.        12490005
                         REJECTS ALL DOLLAR CARDS THAT DO NOT BEGIN            12490010
                         WITH "TAPE","DISK","CARD","VOID", OR "VOIDT".         12490015
                         RETURNS 0 ON "$TAPE","$DISK",AND "$CARD".             12490020
                         RETURNS END OF VOID RANGE ON "$VOID" CARD.            12490025
                         RETURNS MINUS END OF VOID RANGE ON "VOIDT" CARD.      12490030
                ;                                                              12490035
                ARRAY DOLLARWORDS[0:7];                                        12500000
                INTEGER W;                                                     12510000
                LABEL XIT;                                                     12520000
                IF NOT DOLLRE THEN PTOG:=FALSE;                                12540000
                FILL DOLLARWORDS[*] WITH                                       12550000
                    "CARD    ",%0                                              12560000
                    "TAPE    ",%1                                              12570000
                    "DISK    ",%2                                              12580000
                    "VOID    ",%3                                              12590000
                    "VOIDT   ",%4                                              12591000
                    "LIST    ",%5                                              12600000
                    "NEW     ",%6                                              12610000
                    "DEBUGN  ";%7                                              12611000
                COUNT:=SCANIT; %SCAN THE "$"                                   12620000
                IF SAFESCAN THEN GO XIT ELSE                                   12630000
                IF COUNT GTR 0 THEN                                            12640000
                    IF W:=WRD(DOLLARWORDS,3+2*REAL(DOLLRE)) LSS 0 THEN         12650000
                        GO XIT                                                 12660000
```

```
            ELSE                                                                12670000
        ELSE GO XIT;                                                            12680000
        IF W=3 OR W=4 THEN                                                      12690000
        BEGIN                                                                   12700000
            IF SAFESCAN THEN GO XIT ELSE                                        12710000
            IF COUNT LSS 0 THEN DOLLARCARD:=TESTBUFFER[0]&                      12720000
                REAL(W=4)[1:47:1];                                              12721000
            GO XIT;                                                             12730000
        END;                                                                    12740000
        IF NOT DOLLRE THEN                                                      12750000
        BEGIN                                                                   12760000
            DOLLRE:=TRUE;                                                       12780000
            CASE W OF                                                           12790000
            BEGIN                                                               12800000
                BEGIN END;                                                      12810000
                BEGIN PTOG:=TRUE; END;                                %140412820000
                BEGIN TAPE.TYPE:=12; PTOG:=TRUE; END;                       12830000
            END;                                                                12840000
        END;                                                                    12850000
        LST:=NTOG:=DEBUGN:=FALSE;                                               12851000
        WHILE NOT SAFESCAN DO                                                   12860000
        BEGIN                                                                   12870000
            LST:=(W:=WRD(DOLLARWORDS,8)=5) OR LST;                              12880000
            NTOG:=W=6 OR NTOG;                                                  12890000
            DEBUGN:=DEBUGN OR W=7;                                              12891000
        END;                                                                    12900000
        LST:=LST OR DEBUGN;                                                     12901000
    XIT: FIRSTSCAN:=LASTSCAN:=INP; END;                                         12910000
 $POP OMIT                                                                      12910001
%*************************************************************************12910100
    REAL STREAM PROCEDURE TOPIOD(F);                                            12910200
        COMMENT  ACTUALLY AN UNFLAG ROUTINE.  IT WILL,                          12910300
                 HOWEVER, RETURN THE TOP I/O DESC. OF A                         12910305
                 FILE IF THE FILE'S IDENTIFIER IS PASSED;                       12910310
        BEGIN                                                                   12910400
            SI:=F;                                                              12910500
            DI:=LOC TOPIOD;                                                     12910600
            DS:=WDS;                                                            12910700
            DI:=LOC TOPIOD;                                                     12910800
            DS:=RESET;                                                          12910900
        END;                                                                    12911000
 $SET OMIT=OMITCOMPILER                                                         12919999
%*************************************************************************12920000
    PROCEDURE GETNEXTCARD;                                          %150112930000
        BEGIN                                                       %150112930100
        COMMENT HANDLES THE MERGING OF MASTER SYMBOLIC AND PATCH    %150112930200
        FILE.  WILL LEAVE THE NEXT CARD IMAGE IN INPUTBUFFER. ALSO      12930300
        DETECTS "$" CARDS AND HANDLES "VOID" AND "VOIDT" FUNCTIONS.     12930400
        ;                                                           %150112930500
        FORMAT SEQF(X72,I8),FMT(X105,A1," ",A3);                    %150112950000
        OWN INTEGER TAPESEQ,PATSEQ;                                     12960000
        INTEGER D,E,T;                                              %150112970000
        LIST TS(TAPESEQ),PS(PATSEQ);                                    12980000
        LABEL LOOK, START, EOF,EOF1,EOF2,EOP;                           12990000
        DEFINE SEQNR(SEQNR1)=OCTAL(TOPIOD(SEQNR1(9)))#;                 12991000
        T:=" ";                                                     %150112991100
    LOOK:                                                               13000000
        IF NOT PTOG THEN GO EOF1 ELSE                                   13010000
        IF REAL(PTOG) LSS 2 THEN                                        13020000
        BEGIN                                                           13030000
```

```
                READ(TAPE[NO],SEQF,TS);                                  13040000
                IF PATSEQ NEQ 99999999 THEN                              13041000
                READ(PATCH[NO],SEQF,PS);                                 13050000
                PTOG:=BOOLEAN(3);                                        13060000
          END;                                                           13070000
     START:                                                              13080000
          IF TAPESEQ LSS PATSEQ THEN                                     13090000
          BEGIN                                                          13100000
               T:=3"63";                                                 13110000
               READ(TAPE,10,INPUTBUFFER[*]);                             13120000
               READ(TAPE[NO])[EOF];                                      13130000
               TAPESEQ:=SEQNR(TAPE);                                     13131000
               IF FALSE THEN                                             13140000
     EOF:           TAPESEQ:=99999999;                                   13150000
          END ELSE                                                       13160000
          BEGIN                                                          13170000
               T:=3"23";                                                 13180000
               IF TAPESEQ=PATSEQ THEN                                    13190000
               BEGIN                                                     13200000
                    T:=3"51";                                            13210000
                    READ(TAPE); %SKIP OVER THAT CARD                     13220000
                    READ(TAPE[NO])[EOF1];                                13230000
                    TAPESEQ:=SEQNR(TAPE);                                13231000
                    IF FALSE THEN                                        13240000
     EOF1:          TAPESEQ:=99999999;                                   13250000
               END;                                                      13260000
               READ(PATCH,10,INPUTBUFFER[*]);                            13270000
               IF PTOG AND PATSEQ NEQ 99999999 THEN                      13280000
               BEGIN                                                     13290000
                    READ(PATCH[NO1])[EOF2];                              13300000
                    PATSEQ:=SEQNR(PATCH);                                13301000
                    IF PATSEQ=99999999 THEN                              13310000
     EOP:                                                                13310500
               BEGIN                                                     13311000
                    READ(PATCH); %READ 9-S CARD                          13312000
                    READ(PATCH[NO])[EOF2]; %ALLOWS CARD                  13313000
                                           %READER RELEASE               13314000
                                           %AT END OF PATCH              13315000
                    IF D="*" THEN GO START;                              13315100
               END;                                                      13316000
               IF FALSE THEN                                             13320000
     EOF2:     BEGIN                                                     13330000
                    PATSEQ:=99999999;                                    13331000
                    IF PATCHSWITCH=1 THEN   %PATCH FILE ON DISK          13332000
                         CLOSE(PATCH) ELSE                               13333000
                    IF INSWITCH=2 THEN %IF PATCH & CONTROL               13334000
                                       %FROM CARD READER                 13335000
                    BEGIN                                                13336000
                         DONETOG:=TRUE;                                  13337000
                         CLOSE(MAINT);                                   13338000
                    END;                                                 13339000
               END;                                                      13340000
          END;                                                           13342000
          CHARACTERMOVE(1,INP,BL(COREADDR(D)) OR                         13350000
               BL(3"700000"));                                           13360000
          IF D="$" THEN                                                  13370000
          BEGIN                                                          13380000
               IF E:=DOLLARCARD LSS 0 THEN                               13390000
                    WHILE TAPESEQ LSS ABS(E) DO                          13390100
                    BEGIN                                                13390200
```

```
                    READ(TAPE);                                          13390300
                    TAPESEQ:=SEQNR(TAPE);                                13390400
                    END;                                                 13390500
                GO LOOK;                                                 13400000
            END ELSE                                                     13410000
            IF D="*" THEN                                                13411000
            BEGIN                                                        13412000
                PATSEQ:=99999999;                                        13413000
                GO EOP;                                                  13414000
            END;                                                         13415000
        END;                                                             13420000
        IF E GTR TEST:=OCTAL(TOPIOD(INPUTBUFFER[9])) THEN                13430000
            GO START;                                                    13440000
        IF NTOG THEN WRITE(NEW,10,INPUTBUFFER[*]);          %150113440100
        IF LST THEN                                         %150113440200
          BEGIN                                             %150113440300
          IF NOT HTOG THEN                                  %150113440400
            BEGIN                                           %150113440500
            FINDOUTPUT(LSWITCH,0);                          %150113440600
            PRINTCCARDS(CCS,CCCOUNT,TRUE);                  %150113440700
            DATIME;                                         %150113440800
            HTOG:=TRUE;                                     %150113440900
            WRITE(OUTFI[DBL]);                              %150113441000
            END;                                            %150113441100
          WRITE(OUTBUFFER[*],FMT,T,DECMAL(A));              %150113441200
          MOVE(9,INPUTBUFFER,OUTBUFFER[2]);                 %150113441300
          MOVE(1,INPUTBUFFER[9],OUTBUFFER[12]);             %150113441400
          WRITE(LFILE[DBL],15,OUTBUFFER[*]);                %150113441500
          END;                                              %150113441600
        MOVE(1,INPUTBUFFER[10],INPUTBUFFER[9]);             %150113441700
    END;                                                             13450000
$POP OMIT                                                            13450001
%*****************************************************************13480000
    PROCEDURE READAGAIN;                                             13490000
        BEGIN                                                        13500000
        COMMENT  REFILLS INPUTBUFFER,  REINITIALIZES FIRSTSCAN       13500005
                AND LASTSCAN,                                        13500010
                                                                     13500015
        ;                                                            13500075
        LABEL XIT,EOF;                                               13510000
            IF NOT COMPILING THEN                                    13540000
                IF ACCUMULATOR.[CF]-COREADDR(JUNKBUFFER) GEQ 52 THEN13561000
                    GOPERROR(26);                                    13562000
            LASTSCAN:=FIRSTSCAN:=INP;                                13590000
            IF DONESCAN THEN                                         13600000
            READ(INFILE[NO],10,INPUTBUFFER[*])[EOF] ELSE             13610000
            BEGIN                                                    13620000
$SET OMIT=OMITCOMPILER                                  %150113630000
                IF COMPILING THEN                       %150113640000
                    GETNEXTCARD                         %150113650000
                ELSE                                    %150113660000
$POP OMIT                                               %150113670000
                READ(INFILE,10,INPUTBUFFER[*])[EOF];    %150113680000
                CRD:=CRD+1;                             %150113690000
$POP OMIT                                                        13810001
            END;                                                 13840000
            SCAN;                                                13850000
            GO XIT;                                              13860000
        EOF:  IF DONESCAN THEN MOVE(1,COMPAREBUFF[13],           13870000
            TESTBUFFER) ELSE                                     13880000
```

```
            BEGIN                                                                13890000
                 ECFTOG:=TRUE;                                                   13900000
                 GC PERROR;                                                      13910000
            END;                                                                 13920000
       XIT: LINERROR:=FALSE; END;                                                13930000
%*************************************************************************      13940000
  PROCEDURE SCAN;                                                                13950000
       BEGIN                                                                     13960000
                                                                                 13960005
       COMMENT  SCANS ONE SPECIALCHARACTER,INTEGER, OR                           13960010
                IDENTIFIER FROM SOURCE INPUT.  HANDLES                           13960015
                SCANNING OF COMMENTS IN QUOTES ON                                13960020
                CONFIDENCE CONTROL CARDS.  WILL ALSO                             13960025
                PLACE A SEMICOLON IN "SPECIALCHR" IF                             13960030
                "END" OR "ELSE" IS SCANNED DURING COMPILATION.                   13960035
                THIS SIMPLIFIES CHECKING FOR END OF STATEMENTS                   13960040
                IN THE COMPILER;                                                 13960045
       INTEGER W;                                                                13970000
            FIRSTSCAN:=LASTSCAN;                                                 13980000
            IF COUNT:=SCANIT GTR 63 OR                                           13990000
            (COMPILING AND SPECIALCHR="%") THEN READAGAIN;                       14000000
            IF NOT COMPILING THEN                                                14010000
            IF SPECIALCHR="'" THEN IF CMENT:=NOT CMENT THEN                      14020000
            BEGIN                                                                14030000
                 SPECIALCHR:=0;                                                  14040000
                 WHILE SPECIALCHR NEQ "'" DO SCAN;                               14050000
                 SCAN;                                                           14060000
            END;                                                                 14070000
            IF COMPILING AND                                                     14080000
            (W:=WRD(COMPAREBUFF[13],4)=0 OR W=3) THEN %END OR ELSE               14090000
            SPECIALCHR:=";";                                                     14100000
       END;                                                                      14110000
%*************************************************************************      14120000
  PROCEDURE FILLXLATEBUFFER;                                                     14130000
       BEGIN                                                                     14140000
       COMMENT  INITILIZES INT-BCL TRANSLATION TABLE;                            14140005
       FILL TRANSLATEBUFFER[*] WITH                                              14150000
            OCT12010203040506O7,                                                 14160000
            OCT10111314001516I7,                                                 14170000
            OCT72616263646566O7,                                                 14180000
            OCT70717374607576O7,                                                 14190000
            OCT52414243444546O7,                                                 14200000
            OCT50515354405556O7,                                                 14210000
            OCT20212223242526O7,                                                 14220000
            OCT30313334323536O7;                                                 14230000
       END;                                                                      14240000
%*************************************************************************      14250000
%*************************************************************************      14940000
  PROCEDURE CCSCANR(W,SP,E,D,A); VALUE W,SP,E;                                   14950000
       INTEGER W,SP,E,D;                                                         14960000
       ARRAY A[*];                                                               14970000
       COMMENT                                                                   14970005
                SCAN ROUTINE FOR "*" TYPE CONTROL CARDS.                         14970010
                W IS THE INDEX INTO RESERVED WORD LIST                           14970015
                "A" THAT IS EXPECTED.  "SP" IS ZERO IF                           14970020
                A RESERVED WORD IS EXPECTED.  IF A                               14970025
                SPECIAL CHARACTER IS EXPECTED, "SP" CONTAINS                     14970030
                THAT CHARACTER.  IF THE EXPECTED RESULT IS                       14970035
                OBTAINED, THE ACTUAL PARAMETER PASSED AS                         14970040
                "D" IS SET TO 3"77777".  OTHERWISE, IF "E"                       14970045
```

```
                    IS NON-ZERO MAINT CC ERR "E" HAS BEEN DETECTED.          14970050
                    IF "E" = 0 , THE ACTUAL PARAMETER "D" IS SET             14970055
                    TO THE INDEX INTO A OF THE ITEM FOUND (=1 IF             14970060
                    ITEM NOT IN "A".                                         14970065
               ;                                                             14970070
               BEGIN                                                         14980000
                    IF SAFESCAN THEN IF E NEQ 0 THEN                         14990000
                         BEGIN                                               15000000
                              COUNT:=SPECIALCHR:=0;                          15010000
                              ERROR:=34;                                     15020000
                              GO PERROR;                                     15030000
                         END                                                 15040000
                         ELSE D:=-1                                          15050000
                    ELSE                                                     15060000
                    IF SP NEQ 0 THEN                                         15070000
                         IF SPECIALCHR=SP THEN D:=EMPTY ELSE                 15080000
                         GOPERROR(E)                                         15090000
                    ELSE                                                     15100000
                    IF NT1:=WRD(A,20) NEQ W THEN                             15110000
                         IF E NEQ 0 THEN GOPERROR(E)                         15120000
                         ELSE D:=NT1                                         15130000
                    ELSE D:=EMPTY;                                           15140000
               END;                                                          15150000
%*************************************************************************15160000
          INTEGER STREAM PROCEDURE FILEIDENTIFIER(FIRSTSCAN,LASTSCAN,A);     15170000
               BEGIN                                                         15180000
               LABEL L,L1,L2,L3,XIT;                              %140415190000
               LOCAL T1,T2;                                                  15200000
               SI:=FIRSTSCAN; DI:=LOC T1; DS:=WDS;                           15210000
               SI:=T1;                                                       15220000
          L:   IF SC=" " THEN BEGIN SI:=SI+1; GO L; END ELSE                 15230000
               IF SC="." THEN                                                15240000
               BEGIN                                                         15250000
                    DI:=LOC FILEIDENTIFIER;                                  15260000
                    DS:=8 LIT "00077777";                                    15270000
                    GO L3;                                         %140415280000
               END;                                                          15290000
               T1:=SI; SI:=LOC T1; DI:=FIRSTSCAN; DS:=WDS; SI:=T1;           15300000
               IF SC=ALPHA THEN TALLY:=1 ELSE GO XIT;                        15310000
               DI:=A; DS:=16 LIT "0       ";                                15320000
               DI:=DI-15;                                                    15330000
               7(IF SC=ALPHA THEN DS:=CHR ELSE JUMP OUT);                    15340000
          L1:  IF SC=" " THEN BEGIN SI:=SI+1; GO L1; END ELSE                15350000
               IF SC="/" THEN SI:=SI+1 ELSE GO XIT;                          15360000
          L2:  IF SC=" " THEN BEGIN SI:=SI+1; GO L2; END ELSE                15370000
               IF SC=ALPHA THEN TALLY:=2 ELSE                    %140415380000
          L3:  GO XIT;                                           %140415381000
               DI:=A; DI:=DI+9;                                              15390000
               7(IF SC=ALPHA THEN DS:=CHR ELSE JUMP OUT);                    15400000
          XIT:                                                               15410000
               T1:=SI; SI:=LOC T1; DI:=LASTSCAN; DS:=WDS;                    15420000
               FILEIDENTIFIER:=TALLY;                                        15430000
          END;                                                               15440000
%*************************************************************************15450000
          PROCEDURE LABELEQUATER(F,SW,SW1,WW,A); VALUE SW1,WW;               15460000
               FILE F; INTEGER SW,SW1,WW;                                    15470000
               ARRAY A[*];                                                   15480000
               BEGIN                                                         15490000
                    ARRAY AA[0:1];                                           15500000
                    INTEGER D;                                               15520000
```

```
                    DEFINE FILEID=FILEIDENTIFIER(FIRSTSCAN,LASTSCAN,                15530000
                         AA)#;                                                      15540000
               %                                                                    15550000
                    IF SAFESCAN THEN GOPERROR(34);                                  15560000
                    LASTSCAN:=FIRSTSCAN;                                            15570000
                    SW:=0;                                                          15580000
                    IF NT2:=FILEID=0 THEN GOPERROR(34) ELSE                         15590000
                    IF SW1 GTR 0 THEN                                               15600000
                    BEGIN                                                           15601000
                         CCSCANR(WW,0,0,D,A);                                       15610000
                         IF D=EMPTY THEN SW:=SW1 ELSE LASTSCAN:=FIRSTSCAN;          15620000
                    END;                                                            15621000
                    FILL F WITH IF BL(NT2) THEN 0 ELSE AA[0],                       15630000
                                IF BL(NT2) THEN AA[0] ELSE AA[1];                   15631000
                    MOVE(2,AA,TESTBUFFER);                                          15632000
               END;                                                                 15640000
          %*********************************************************************** 15650000
          BOOLEAN PROCEDURE CONTROLCARD;                                %140115660000
               BEGIN                                                    %140115670000
               COMMENT  SCANS "*" TYPE MAINTENANCE CONTROL CARDS;       %140115670005
               OWN ARRAY CONTROLWORDS[0:19];                            %140115680000
               INTEGER D;                                               %140115690000
               BOOLEAN CMPL;                                            %140115692000
               LABEL LE,LE1,XIT;                                        %140115700000
               DEFINE                                                   %140115710000
               CCSCAN(CCSCAN1,CCSCAN2,CCSCAN3,CCSCAN4)=                 %140115720000
               CCSCANR(CCSCAN1,CCSCAN2,CCSCAN3,CCSCAN4,                 %140115730000
               CONTROLWORDS)#,                                          %140115740000
               LABELEQUATE(LABELEQUATE1,LABELEQUATE2,LABELEQUATE3,      %140115750000
               LABELEQUATE4)=                                           %140115760000
               LABELEQUATER(LABELEQUATE1,LABELEQUATE2,LABELEQUATE3,     %140115770000
               LABELEQUATE4,CONTROLWORDS)#;                             %140115780000
          %                                                             %140115794000
               UNLOCK(CCS[*]);                                          %140115794050
               FILL TAPE WITH "SYMBOL ","TPECNF ",*,*,*,3;              %140115794100
               FILL CODEFILE WITH "OTPECNF","MAINT  ";                  %140115794200
               FILL NEW WITH "NEW    ","MAINT  ";                       %140115794300
               FILL PTCH WITH "PATCH  ","MAINT  ";                      %140115794400
               TAPEQUATED:=FALSE;                                       %140115795000
               CCCOUNT:=0;                                              %140115796000
               IF CONTROLWORDS[0]=0 THEN                                %140115800000
               FILL CONTROLWORDS[*] WITH                                %140115810000
               "COMPILE ",                                              %140115820000
               "TO      ",                                              %140115830000
               "CONFIDEN",                                              %140115840000
               "FILE    ",                                              %140115850000
               "SIMPL   ",                                              %140115860000
               "CARD    ",                                              %140115870000
               "DISK    ",                                              %140115880000
               "TAPE    ",                                              %140115890000
               "NEWTAPE ",                                              %140115900000
               "DATA    ",                                              %140115910000
               "SERIAL  ",                                              %140115919000
               "END     ",                                              %140115920000
               "EXECUTE ",                                              %140115921000
               "SYNTAX  ",                                              %140115921100
               "LIBRARY ",                                              %140115921200
               "CONF    ",                                              %140115921300
               "LINE    ",%16                                           %140115921400
               "STACK   ",%17                                           %140115921500
```

```
        "WAIT    ",%18                                                  %140115921600
        "DISPLAY ";%19                                                  %140115921700
        CCSCAN(11,0,0,D);                                               %140115930000
        IF D=EMPTY THEN GO RETURN1 ELSE                                 %140115940000
        IF D=12 THEN CONTROLCARD:=TRUE ELSE                             %140115950000
        IF NOT (CMPL:=D=0) THEN GOPERROR(0);                            %140115950100
        CLEAR(CCS,200);                                                 %140115950150
        CLEANMOVE(INPUTBUFFER,CCS);                                     %140115950300
        LABELEQUATE(CODEFILE,JUNK,-1,-1);                               %140115950400
        IF (NT1:=CODEFILE.MFID).[42:6] = " " THEN                       %140115950450
        CODEFILE.MFID:=0&NT1[12:6:36]                                   %140115950500
        ELSE                                                            %140115950550
        IF REAL(BL(NT1) EQV BL(0))=REAL(NOT FALSE) THEN                 %140115950560
        IF (NT1:=CODEFILE.FID).[42:6]=" " THEN                          %140115950565
        CODEFILE.FID:=0&NT1[12:6:36]                                    %140115950570
        ELSE                                                            %140115950575
           BEGIN COUNT:=7; GOPERROR(35); END                            %140115950580
        ELSE                                                            %140115950585
           BEGIN COUNT:=7; GOPERROR(35); END;                           %140115950600
        CODEFILE.AREAS:=REAL(CMPL);                                     %140115950650
        CODEFILE.AREASIZE:=IF CMPL THEN 1024 ELSE 0;                    %140115950700
        PMFID:=TESTBUFFER[0]; PFID:=TESTBUFFER[1];                      %140115950750
        IF CMPL THEN                                                    %140115950760
           BEGIN                                                        %140115950765
           IF REAL(BL(PFID) EQV BL("        "))=REAL(NOT FALSE) THEN    %140115950770
              BEGIN                                                     %140115950773
              PTCH.FID:=PMFID;                                          %140115950775
              PTCH.MFID:=0;                                             %140115950777
              END ELSE                                                  %140115950779
              BEGIN                                                     %140115950780
              PTCH.MFID:=PMFID; PTCH.FID:=PFID;                         %140115950785
              END;                                                      %140115950790
           END;                                                         %140115950795
        WHILE NOT SAFESCAN DO                                           %140115950800
           BEGIN                                                        %140115950900
           W:=WRD(CONTROLWORDS,16);                                     %140115951000
           CONF:=CONF OR W=2 OR W=13; %CONFIDENCE OR CONF               %140115951100
           LIBONLY:=LIBONLY OR W=13;  %SYNTAX                           %140115951200
           SAVETOG:=SAVETOG OR W=14;  %LIBRARY                          %140115951300
           END;                                                         %140115951400
        PATCHSWITCH:=REAL(CSWITCH=0);                                   %140115951500
        UNIT:=EMPTY;                                                    %140115951600
        IF CMPL THEN                                                    %140115951700
           BEGIN                                                        %140115951800
           HEADER[0]:=0;                                                %140115951900
           MOVE(29,HEADER,HEADER[1]);                                   %140115952000
           HEADER[5]:=1;                                                %140115952100
           HEADER[21]:=MAXLEVELS-1;                                     %140115952150
           HEADER[28]:="ONLINE ";                                       %140115952160
           HEADER[29]:="TESTAPE";                                       %140115952170
           END                                                          %140115952200
        ELSE READ(CODEFILE,30,HEADER[*]);                               %140115952300
     LE1:                                                               %140116000000
        IF SPECIALCHR NEQ ";" THEN                                      %140116000050
        DO UNTIL SAFESCAN;                                              %140116000100
        IF SPECIALCHR=";" THEN GO LE1;                                  %140116000500
        ACCUMULATOR:=COREADDR(JUNKBUFFER);                              %140116001000
        IF CCCOUNT=19 THEN CCCOUNT:=0;                                  %140116002000
        READ(INFILE,10,INPUTBUFFER[*]);                                 %140116010000
        CRD:=CRD+1;                                                     %140116010500
```

```
      CLEANMOVE(INPUTBUFFER,CCS[(CCCOUNT:=CCCOUNT+1)*10]);                %140116011000
      FIRSTSCAN:=LASTSCAN:=INP;                                          %140116020000
      CCSCAN(-2,"*",30,D);                                               %140116030000
    LE1:                                                                 %140116031000
      CCSCAN(-2,0,0,D);                                                  %140116040000
      IF D=9 OR D=11 THEN GO XIT ELSE                                    %140116040100
      IF D=3 THEN %"FILE"                                                %140116040200
        BEGIN                                                            %140116040300
        CCSCAN(-2,0,0,D);                                                %140116040400
        IF D=16 THEN                                                     %140116040500
          BEGIN                                                          %140116040600
          CCSCAN(3,"=",33,0);                                            %140116040800
          IF SAFESCAN THEN GO LE ELSE                                    %140116040900
          IF D:=WRD(COMPAREBUFF,22) LSS 17 THEN                          %140116041000
          GOPERROR(33) ELSE                                              %140116041100
          HEADER[4].[CF]:=D=17;                                          %140116041200
          SOP:=FALSE;                                                    %140116041250
          IF SAFESCAN OR COUNT GEQ 0 THEN GO LE ELSE                     %140116041300
          IF D:=TESTBUFFER[0] LEQ 132 THEN                               %140116041400
          HEADER[4].[SF]:=(D+7) DIV 8;                                   %140116041500
          GO LE;                                                         %140116041600
          END ELSE                                                       %140116041700
        IF D NEQ 7 THEN GOPERROR(33);                                    %140116041800
        TAPEQUATED:=TRUE;                                                %140116050000
        CCSCAN(3,"=",33,JUNK);                                           %140116050300
        FIRSTSCAN:=LASTSCAN;                                             %140116050310
        IF D:=FILEIDENTIFIER(FIRSTSCAN,LASTSCAN,TESTBUFFER)=0 THEN       %140116050320
        GOPERROR(33) ELSE                                                %140116050330
        IF D GTR 2 THEN GOPERROR(34) ELSE                                %140116050340
          IF D=1 THEN BEGIN HEADER[28]:=0;HEADER[29]:=TESTBUFFER[0];END  16050350
        ELSE MOVE(2,TESTBUFFER,HEADER[28]);                              %140116050360
        IF SAFESCAN THEN GOPERROR(34) ELSE                               %140116050400
        IF UNIT:=WRD(UNITS[0,0],16) LSS 0 THEN GOPERROR(33)              %140116050500
        ELSE GO LE;                                                      %140116050600
        END ELSE                                                         %140116050700
      IF D=17 THEN                                                       %140116050800
        BEGIN                                                            %140116050900
        CCSCAN(3,"=",33,JUNK);                                           %140116051000
        IF SAFESCAN THEN GOPERROR(34) ELSE                               %140116051100
        IF COUNT GEQ 0 THEN                                              %140116051200
        GOPERROR(30)                                                     %140116051300
        ELSE                                                             %140116051400
        HEADER[21]:= MIN(1022,MAX(MAXLEVELS -1,                          %140116051500
        TESTBUFFER[0]))&REAL(CMPL)[1:47:1];                              %140116051600
        GO LE;                                                           %140116051700
        END                                                              %140116051800
      ELSE                                                               %140116051900
      IF D=18 THEN %WAIT                                                 %140116052000
        BEGIN                                                            %140116052100
        CCSCAN(3,"=",33,JUNK);                                           %140116052200
        IF SAFESCAN THEN GOPERROR(34);                                   %140116052300
        IF COUNT GEQ 0 THEN GOPERROR(30);                                %140116052400
        DELAY:=HEADER[22]:=MIN(511,TESTBUFFER[0]);                       %140116052500
        GO LE;                                                           %140116052550
        END                                                              %140116052600
      ELSE                                                               %140116052700
      IF D=19 THEN   %DISPLAY                                            %140116052900
        BEGIN                                                            %140116053000
        CCSCAN(3,"=",33,JUNK);                                           %140116053100
        IF SAFESCAN THEN GOPERROR(34);                                   %140116053200
```

```
      IF D:=WRD(COMPAREBUFF[23],3) LSS 0 THEN GOPERROR(33);          %140116053300
      HEADER[5]:=REAL(OCTL:=D NEQ 2)+2x                              %140116053400
      REAL(BCL:=D=1);                                                %140116053500
      GO LE;                                                         %140116053550
      END                                                            %140116053600
   ELSE                                                              %140116053700
   IF D NEQ 4 THEN GOPERROR(30);                                     %140116060000
   CCSCAN(3,0,33,D);                                                 %140116070000
   CCSCAN(-2,0,0,D);                                                 %140116080000
   IF D LSS 5 OR D GTR 8 THEN                                        %140116090000
   IF D=16 THEN    %LINE                                             %140116090100
      BEGIN                                                          %140116090200
      CCSCAN(3,"=",33,JUNK);                                         %140116090300
      IF SAFESCAN THEN GOPERROR(34) ELSE                             %140116090400
      IF D:=WRD(COMPAREBUFF[17],5) LSS 0 OR D=1 OR D=4 THEN          %140116090500
      GOPERROR(8);                                                   %140116090510
      LSWITCH:=D;                                                    %140116090600
      GO LE;                                                         %140116090700
      END ELSE                                                       %140116090800
   GOPERROR(33) ELSE                                                 %140116099000
      BEGIN CCSCAN(3,"=",33,JUNK);                                   %140116100000
      CASE D-5 OF                                                    %140116110000
         BEGIN                                                       %140116120000
            BEGIN %CARD                                           %140116130000
            LABELEQUATE(PTCH,PATCHSWITCH,1,10);                    %140116131000
            IF PATCHSWITCH=0 THEN                                  %140116132000
               BEGIN                                               %140116133000
               CCSCAN(-2,0,0,D);                                   %140116134000
               PATCHSWITCH:=REAL(D=6);                             %140116135000
               END;                                                %140116136000
            IF CSWITCH=0 THEN PATCHSWITCH:=1;                      %140116136100
            END;                                                   %140116137000
         LABELEQUATE(DSK,JUNK,-2,0); %DISK                         %140116140000
            BEGIN                                                  %140116150000
            LABELEQUATE(TAPE,JUNK,-2,0);                           %140116150100
            TAPE.TYPE:=IF SAFESCAN OR D:=WRD(CONTROLWORDS,17)      %140116150200
            LSS 0 THEN 3 ELSE                                      %140116150300
            IF D=6 OR D=10 THEN 12 ELSE 3;                         %140116150400
            END;                                                   %140116150500
            BEGIN                                                  %140116151000
            LABELEQUATE(NEW,NEWSWITCH,1,7); %NEWTAPE               %140116160000
            NEW.TYPE:=IF NEWSWITCH=1 THEN 3 ELSE 12;               %140116161000
            END;                                                   %140116166000
         END;                                                      %140116170000
      END;                                                         %140116180000
   GO LE;                                                          %140116190000
XIT: IF CMPL AND D=11 AND PATCHSWITCH=0 THEN PATCHSWITCH:=1;       %140116200000
   LOCK(CCS[*]);                                                   %140116210000
   END;                                                            %140116220000
%*****************************************************************16230000
%*****************************************************************16240000
   PROCEDURE RELEASETHEUNIT(UNIT); VALUE UNIT; INTEGER UNIT;         16250000
      BEGIN                                                          16260000
      IF UNITS[1,UNIT] LSS 0 THEN                                    16270000
         LOCK(TESTAPE,RELEASE);                                      16280000
      UNITS[1,UNIT].[1:1]:=0;                                        16300000
      END;                                                           16310000
%*****************************************************************16320000
   INTEGER STREAM PROCEDURE UNITNAME(U);                             16330000
      BEGIN                                                          16340000
```

```
          SI:=U; DI:=LOC UNITNAME; DI:=DI+5; DS:=3 CHR;                    16350000
          END;                                                             16360000
%*************************************************************************16370000
     DEFINE UNAME(UNAME1)=UNITNAME(UNITS[0,UNAME1])#;                      16380000
%*************************************************************************16490000
     BOOLEAN PROCEDURE GETHEUNIT(LUN,KEY);                    %140516500000
          VALUE LUN,KEY;                                      %140516510000
          INTEGER LUN;                                        %140516520000
          BOOLEAN KEY;                                             16530000
          BEGIN                                                    16540000
          COMMENT  OBTAINS TAPE UNIT "LUN".  IF KEY IS        %140516540005
                   TRUE, ATTACHES UNIT THRU USE OF A TYPE           16540010
                   5 FILE.  OTHERWISE, LOOKS FOR FILE WITH          16540015
                   NAME HEADER[28]/HEADER[29] AND CHECKS            16540020
                   TO SEE THAT IT IS MOUNTED ON "LUN";     %140516540025
$SET OMIT=OMITINTERPRETER                                          16540026
          FORMAT NOTESTAPE("TEST TAPE ON WRONG UNIT(",             16550000
                           A3," NOT ",A3,")",                      16550100
               "←");                                               16560000
          INTEGER U,U1,I;                                          16570000
          BOOLEAN SECONDTIME;                              %140516571000
          LABEL XIT,PAR,WPAR,AXL;                                  16580000
          IF U:=UNITS[1,LUN] LSS 0 THEN GO XIT ELSE        %140516590000
          IF KEY THEN                                              16600000
          BEGIN                                                    16610000
               FILL TESTAPE WITH 0,"    "&UNAME(LUN)[6:30:18],0,*,0,5;  16620000
               WRITE(TESTAPE)[WPAR:WPAR];                          16630000
          END ELSE                                                 16640000
          WHILE TRUE DO                                            16641000
          BEGIN                                                    16650000
               FILL TESTAPE WITH HEADER[28],HEADER[29];            16661000
               READ(TESTAPE)[PAR:PAR];                             16670000
     PAR:      IF U1:=TOPIOD(TESTAPE).[3:5] NEQ U.[FF] THEN        16680000
               BEGIN                                               16690000
                    I:=0;                                  %140516700000
                    WHILE UNITS[1,I].[FF] NEQ U1 DO I:=I+1;%140516700100
                    IF SECONDTIME THEN                     %140516700200
                    BEGIN                                  %140516700300
                         UNIT:=LUN:=I;                     %140516700400
                         UTOG:=TRUE;                       %140516700500
                         GO WPAR;                          %140516700600
                    END;                                   %140516700700
                    CLOSE(TESTAPE,RELEASE);                %140516701000
     AXL:                                                          16702100
                    WRITE(CFILE,NOTESTAPE,UNAME(I),UNAME(LUN));%140516710000
                    IF W:=SKIPSTOPORDK(TRUE,FALSE)=2 THEN  %140016710200
                         BEGIN GETHEUNIT:=TRUE;GO XIT;END;            16710300
                    IF W=4 THEN GO AXL;                            16710400
                    SECONDTIME:=TRUE;                      %140516710500
               END ELSE GO WPAR;                                   16740000
          END;                                                     16750000
     WPAR:                                                         16760000
          TAPEDATE:=IF KEY THEN TIME(0) ELSE TESTAPE.DATE;         16760100
          DKBUSINESS(COREADDR(PRN)&LUN[CTF]&1023[CTSF]);%140516760200
          PRN:=PRN.[30:18];                                        16760300
          REWIND(TESTAPE);                                         16770000
          TRANS:=0;                                                16780000
          UNITS[1,LUN].[1:1]:=1;                           %140516790000
     XIT:                                                          16800000
$POP OMIT                                                          16800001
```

```
          END;                                                                  16800050
%*************************************************************************16800100
   BOOLEAN PROCEDURE ZONEPART;                                          %150116800110
      BEGIN                                                             %150116800120
      LABEL XIT,ZONELOOP,E; INTEGER ZONE;                               %150116800130
      ZONEWORD:=0;                                                      %150116800140
ZONELOOP:                                                               %150116800150
      SCAN;IF COUNT GEQ 0 THEN BEGIN ERROR:=42;GO E;END;                %150116800160
      IF ZONE:=TESTBUFFER[0]-1 < 0 OR ZONE > 2 THEN                     %150116800170
         BEGIN ERROR:=43;GO E;END;                                      %150116800180
      TWOSET(ZONE,ZONEWORD);SCAN;IF SPECIALCHR =","  THEN GO ZONELOOP;    16800190
      GO XIT;                                                           %150116800200
E:    ZONEPART:=TRUE;                                                   %150116800210
XIT:  END;                                                              %150116800220
%*************************************************************************16800230
     BOOLEAN PROCEDURE RANGEFINDER;                                     %150116800240
          BEGIN                                                             16800300
          COMMENT  HANDLES COMPONENT TYPE DISK ADDRESS RANGE            16800355
                   DESCRIPTIONS (E.G., EU 3 SU 5 DISK 3 ZONE 2)             16800360
          ;                                                                 16800365
          INTEGER EU,SU,SU1,DISK,DISK1,ZONE;                            16800400
          DEFINE GOERROR(GOERROR1)=BEGIN ERROR:=GOERROR1; GO E;END#;        16800500
          LABEL E,ZONEL,ZONELOOP,XIT;                                       16800600
      %                                                                     16800700
          DISKTEST:=TRUE;                                               16800750
          SCAN;  %SCAN EU NUMBER                                            16800800
          IF COUNT GEQ 0 THEN    %NOT NUMBER                                16800900
             GOERROR(36);                                                   16801000
          IF EU:=TESTBUFFER[0] GTR 19 THEN GOERROR(37);                     16801100
          IF DKBTOG:=EU GTR 9 THEN                                      %140716801110
          BEGIN                                                         %140716801120
               UNIT:=19; TINU:=12;                                      %140716801130
          END ELSE                                                      %140716801140
          BEGIN                                                         %140716801150
               UNIT:=18; TINU:=6;                                       %140716801160
          END;                                                          %140716801170
          IF TESTADDRESS(EU:=EU*1000000) THEN GOERROR(37);                  16801200
          DKTYPE:=1+DISKIO(TESTBUFFER,-0,                                   16801300
               EU).[28:1];                                                  16801400
      %                                                                     16801500
          SCAN; IF SPECIALCHR=";" THEN SCAN;                                16801600
      %                                                                     16801700
          IF WORD=29 THEN          %STORAGE UNIT                            16801800
             BEGIN                                                          16801900
             SCAN;                                                          16801950
             IF COUNT GEQ 0 THEN GOERROR(38);                               16802000
             IF SU:=TESTBUFFER[0] LSS 1 OR SU GTR 5 THEN                    16802100
                GOERROR(39);                                                16802200
             IF TESTADDRESS(EU+((SU-1)*40000*DKTYPE)) THEN                  16802300
                GOERROR(39);                                                16802400
      %                                                                     16802500
             SCAN; IF SPECIALCHR="-" THEN                                   16802600
                BEGIN                                                       16802700
                SCAN;                                                       16802800
                IF COUNT GEQ 0 THEN GOERROR(38);                            16802900
                IF SU1:=TESTBUFFER[0] LSS 1 OR SU1 GTR 5 THEN               16803000
                   GOERROR(39);                                             16803100
                IF TESTADDRESS(EU+((SU1-1)*40000*DKTYPE)) THEN              16803200
                   GOERROR(39);                                             16803300
                DISK:=1; DISK1:=4;                                          16803310
```

```
                    SCAN; GO ZONEL;                                          16803400
                    END;                                                     16803500
               SU1:=SU;                                                      16803600
          %                                                                  16803700
               IF SPECIALCHR=";" THEN SCAN;                                  16803800
          %                                                                  16803900
               IF WORD=30 THEN     %DISK                                     16804000
                    BEGIN                                                    16804100
                    SCAN;                                                    16804200
                    IF COUNT GEQ 0 THEN GOERROR(40);                         16804300
                    IF DISK:=TESTBUFFER[0] LSS 1 OR DISK GTR 4 THEN          16804400
                         GOERROR(41);                                        16804500
                    SCAN;                                                    16804600
                    IF SPECIALCHR="-" THEN                                   16804700
                         BEGIN                                               16804800
                         SCAN;                                               16804900
                         IF COUNT GEQ 0 THEN GOERROR(40);                    16805000
                         IF DISK1:=TESTBUFFER[0] LSS 1 OR DISK1 GTR 4        16805100
                              THEN GOERROR(41);                              16805200
                         SCAN;                                               16805300
                         END                                                 16805400
                    ELSE DISK1:=DISK;                                        16805500
                    END                                                      16805600
               ELSE                                                          16805700
                    BEGIN                                                    16805800
                    DISK:=1;                                                 16805900
                    DISK1:=4;                                                16806000
                    END;                                                     16806100
               END                                                           16806200
          ELSE                                                               16806300
               BEGIN                                                         16806400
               SU:=1;                                                        16806500
               WHILE NOT BOOLEAN(DISKIO(OUTBUFFER,-0,                        16806600
                    EU+SU1×40000×DKTYPE).[27:1]) DO SU1:=SU1+1;              16806700
               DISK:=1; DISK1:=0;                                            16806750
               SU1:=MIN(SU1+1,6);                                            16806760
               END;                                                          16806800
          ZONEL:                                                             16806900
               IF SPECIALCHR=";" THEN SCAN;                                  16807000
          %                                                                  16807100
               IF WORD=31 THEN IF ZONEPART THEN GO E;                %150116807200
          %                                                                  16808400
               IF SPECIALCHR=";" THEN SCAN;                                  16808500
          %                                                                  16808600
          %                                                                  16808800
               IF NT1:=EU+((SU-1)×40000×DKTYPE)+(DISK-1)×10000               16808900
                    GTR ENDADDR OR NT1 LSS BEGINADDR OR                      16809000
                         BEGINADDR=0 THEN ENDADDR:=-1;                       16809100
               BEGINADDR:=NT1;                                               16809200
               IF NT1:=EU+((SU1-1)×40000×DKTYPE)+(DISK1×10000)               16809300
                    -1 GTR ENDADDR THEN AREACLEARED:=FALSE;                  16809400
               SEGS:=(ENDADDR:=NT1)-BEGINADDR+1;                     %150116809500
          %                                                                  16809600
               IF FALSE THEN                                                 16809700
          E:                                                                 16809800
               RANGEFINDER:=TRUE;                                            16809900
          XIT: END;                                                          16810000
     %*******************************************************************   16810100
          BOOLEAN PROCEDURE CONFSCAN;                                        16820000
               BEGIN                                                         16830000
```

```
COMMENT  TOGETHER WITH TESTSCHEDULER AND RANGEFINDER,                    16830005
         CONFSCAN HANDLES "CONFIDENCE" TYPE MAINTENANCE                  16830010
         CONTROL CARDS;                                                  16830015
DEFINE COMMENTSCAN=BEGIN                                                 16855000
                        WHILE SPECIALCHR NEQ "#" DO SCAN;                16856000
                        GO ENDSCAN;                                      16857000
                    END#;                                                16858000
DEFINE GOERROR(GOERROR1)=                                                16859000
     BEGIN ERROR:=GOERROR1; GO E; END#;                                  16860000
LABEL ADDRSCAN,                                                          16861000
      B,                                                                 16862000
      RV,                                                                16863000
      SCHEDULE,                                                          16864000
      EADDR,                                                             16865000
      CALLSCHEDULE,                                                      16866000
      E,                                                                 16867000
      D,                                                                 16868000
      D1,                                                                16869000
      P,                                                                 16870000
      EOF,                                                               16871000
      ENDSCAN,                                                           16872000
      FILLTRAN,                                                          16873000
      XIT;                                                               16874000
BOOLEAN TOGLE,REVR,OP,XLATE;                                             16875000
INTEGER SEL1,I;                                                          16876000
REAL IOD,JUNK;                                                           16877000
     CONF:=TRUE;                                                         16877500
     ZONEWORD:=7;                                                        16877600
     TAPETEST:=DISKTEST:=                                                16877700
     OP:=XLATE:=FALSE;                                                   16878000
     IF REVR:=REV THEN GO RV;                                            16879000
B:                                                                       16880000
     REVR:=FALSE;                                                        16881000
     SCAN;                                                               16882000
     FILL CODEFILE WITH "OTPECNF","MAINT  ";                             16882500
     CODEFILE.AREAS:=0;                                                  16882600
     CODEFILE.AREASIZE:=0;                                               16882700
     IF SPECIALCHR="=" THEN                                              16883000
     BEGIN                                                               16884000
          LABELEQUATER(CODEFILE,JUNK,-1,-2,TESTBUFFER);                  16885000
          IF (NT1:=CODEFILE.MFID).[42:6]=" " THEN                        16885100
               CODEFILE.MFID:=0&NT1[12:6:36]                             16885200
          ELSE                                                           16885300
               BEGIN COUNT:=7; GOERROR(35); END;                         16885400
          SCAN;                                                          16886000
     END;                                                                16887000
     PMFID:= CODEFILE.MFID;                                              16887100
     PFID:= CODEFILE.FID;                                                16887200
     IF SPECIALCHR NEQ "(" THEN GOERROR(1);                              16888000
     SCAN;                                                               16889000
     IF WORD=3 THEN%"BEGIN"                                              16890000
     BEGIN DISKTEST:=TOGLE:=TRUE; SCAN; END ELSE                         16891000
     IF WORD=28 THEN   %EU                                               16891100
          IF RANGEFINDER THEN GO E  %ERROR                               16891200
          ELSE GO CALLSCHEDULE                                           %140716891300
     ELSE                                                                16891400
     IF TAPETEST:=COUNT GTR 0 THEN GO CALLSCHEDULE ELSE                  16892000
     IF NOT DISKTEST:=COUNT LSS 0 THEN GOERROR(2);                       16893000
     IF OKBTOG:= SEL1:=TESTBUFFER[0] GEQ 10000000 THEN                   %140716893100
     BEGIN                                                               %140716893200
```

```
          UNIT:=19; TINU:=12;                                    %140716893300
     END ELSE                                                    %140716893400
     BEGIN                                                       %140716893500
          UNIT:=18; TINU:=6;                                     %140716893600
     END;                                                        %140716893700
     IF SEL1 GTR ENDADDR OR SEL1 LSS BEGINADDR OR                %140716894000
     BEGINADDR=0 THEN                                            %140716895000
     BEGIN                                                            16896000
          IF TESTADDRESS(BEGINADDR:=SEL1) THEN GOERROR(25);           16897000
          ENDADDR:=-1;                                                16898000
     END ELSE BEGINADDR:=SEL1;                                        16899000
     IF TOGLE THEN GO ADDRSCAN;                                       16900000
     SCAN;                                                            16901000
     IF SPECIALCHR NEQ ":" THEN GOERROR(3);                           16902000
     SCAN;                                                            16903000
     IF COUNT GEQ 0 THEN GOERROR(2)                                   16904000
     ELSE SEL1:=TESTBUFFER[0]+BEGINADDR-1;                            16905000
EADDR:                                                                16906000
     IF SEL1 GTR ENDADDR OR SEL1 LSS                                  16907000
     BEGINADDR OR ENDADDR=-1 THEN                                     16908000
     BEGIN                                                            16909000
          AREACLEARED:=FALSE;                                         16910000
          IF TESTADDRESS(ENDADDR:=SEL1) OR                            16911000
          ENDADDR LSS BEGINADDR OR                                    16912000
          ENDADDR DIV 1000000 NEQ BEGINADDR DIV 1000000               16913000
          THEN GOERROR(25);                                      %150116914000
     END ELSE ENDADDR:=SEL1;                                          16916000
     SEGS:=ENDADDR-BEGINADDR+1;                                 %150116916100
     GO SCHEDULE;                                                     16917000
ADDRSCAN:                                                             16918000
     TOGLE:=FALSE;                                                    16919000
     SCAN;                                                            16920000
     IF SPECIALCHR = ";" THEN SCAN;                                   16921000
     IF WORD NEQ 4 THEN GOERROR(4);%"END"                             16922000
     SCAN;                                                            16923000
     IF COUNT GEQ 0 THEN GOERROR(2);                                  16924000
     SEL1:=TESTBUFFER[0];                                             16925000
     GO EADDR;                                                        16926000
SCHEDULE:                                                             16927000
     SCAN;                                                            16928000
     IF SPECIALCHR=";" THEN SCAN;                                     16929000
CALLSCHEDULE:                                                         16930000
     IF TAPETEST THEN                                                 16930100
          BEGIN                                                       16930200
          READ(CODEFILE,30,HEADER[*]);                                16930300
          NUMBEROFTESTS:=HEADER[8];                                   16930400
          END                                                         16930500
     ELSE NUMBEROFTESTS:=NUMBEROFDISKTESTS;                           16930600
     SEL1:=0;TESTMASK:=ROMASK:=NOMASK:=FALSE;                   %150116930700
     IF W:=WORD=5 THEN %SCHEDULE                                      16932000
          IF TESTSCHEDULER(SEL1) THEN GO E                            16933000
          ELSE IF SEL1=0 THEN GOERROR(15)                             16933050
          ELSE TESTARRAY[SEL1]:=REAL(NOT FALSE)                       16933100
     ELSE                                                             16933200
     IF WORD=27 THEN %TESTAPE                                         16934000
     BEGIN                                                            16935000
          IF NOT TAPETEST THEN GOERROR(5);                            16936000
          TESTARRAY[0]:=1;                                            16937000
          SCAN;                                                       16938000
          IF SPECIALCHR NEQ ")" THEN GOERROR(16);                     16939000
```

```
                END ELSE                                                %150116940000
                IF WORD=31 THEN        %ZONE                            %150116940010
                BEGIN                                                   %150116940020
                     IF NOT DISKTEST THEN GOERROR(5);                   %150116940030
                     IF ZONEPART THEN GO E;                             %150116940040
                     SCAN;IF SPECIALCHR=";" THEN SCAN;GO CALLSCHEDULE;    16940050
                END ELSE GO E;                                          %150116940060
                IF DISKTEST THEN                                        %140716940100
                BEGIN                                                   %140716940200
                     SCAN;                                              %140716940300
                     IF NT1:=WRD(UNITS[0,16],2) LSS 0 THEN GO D1;       %140716940400
                     IF NT1=0 AND DKBTOG THEN GOERROR(48);              %140716940500
                     UNIT:=18+NT1;                                      %140716940600
                     TINU:=6+6×NT1;                                     %140716940700
                END ELSE                                                %140716940800
                IF TAPETEST THEN                                          16941000
                BEGIN                                                     16942000
                     SCAN;                                                16943000
                     IF UNIT:=WRD(UNITS[0,0],16) LSS 0 THEN               16945000
                          IF HEADER[1] GTR 0 THEN                         16946000
                               GOERROR(29)                                16946100
                          ELSE                                            16946200
                               BEGIN                                      16946300
                               TAPETEST:=FALSE;                           16946400
                               GO D1;                                     16946500
                               END;                                       16946600
                END;                                                      16947000
           D:                                                             16948000
                SCAN;                                                     16949000
           D1:                                                            16950000
                IF REV THEN GO RV;                                        16951000
                IF SPECIALCHR="#" THEN GO ENDSCAN ELSE                    16952000
                IF SPECIALCHR="%" THEN COMMENTSCAN ELSE                   16953000
                IF SPECIALCHR=";" THEN GO D ELSE                          16954000
           RV:                                                            16955000
                IF SEL1:=WORD GEQ 24 AND SEL1 LEQ 26 THEN                 16956000
                BEGIN                                                     16957000
                     IF XLATE THEN GOERROR(6) ELSE XLATE:=TRUE;           16958000
                     CASE(SEL1-24) OF                                     16959000
                     BEGIN                                                16960000
                          BEGIN OCTL:=TRUE; BCL:=FALSE; END;              16961000
                          BCL:=OCTL:=TRUE;%BCL                            16962000
                          BCL:=OCTL:=FALSE;%INT                           16963000
                     END;                                                 16964000
                     GO D;                                                16965000
                END ELSE                                                  16966000
                IF WORD=6 THEN%"OUTPUT"                                   16967000
                BEGIN                                                     16968000
                     IF OP THEN GOERROR(7) ELSE OP:=TRUE;                 16969000
                     SCAN;                                                16970000
                     IF WORD=17 THEN SCAN;%"RESULT"                       16971000
                     IF WORD=7 THEN SCAN;%"ON"                            16972000
                     IF SEL1:=WORD LSS 18 OR SEL1 GTR 22 THEN             16973000
                     %18="LP"                                             16974000
                     %19="SPO"                                            16975000
                     %20="PBO"                                            16976000
                     %21="PBT"                                            16977000
                     %22="TWX"                                            16978000
                     IF SEL1 =16 THEN GO P ELSE                           16979000
                     GOERROR(8) ELSE                                      16980000
```

```
                FINDOUTPUT(SEL1-18,0);                                  16981000
                IF OUTSWITCH=1 AND CSWITCH NEQ 0 THEN GOPERROR(8);      16986200
                SCAN; SEL1:=WORD;                                       16987000
                IF SEL1=16 THEN                                         16988000
P:                                                                      16989000
                BEGIN PAGE:=FALSE; GO D; END ELSE                       16990000
                BEGIN PAGE:=TRUE; GO D1; END;                           16991000
            END;                                                        16992000
            IF REV THEN                                                 16993000
            BEGIN                                                       16994000
                REV:=FALSE;                                             16995000
                IF COUNT=0 THEN                                         16996000
                    IF SOP:=SPECIALCHR="#" THEN GO READIT               16996100
                    ELSE SCAN;                                          16996200
                IF SEL1:=WORD = 1 THEN GO B ELSE                        16997000
                IF SOP:=SPECIALCHR="#" THEN GO READIT;                  16997100
            END;                                                        16998000
            ERROR:=26+REAL(REVR);                                       16999000
E:                                                                      17000000
            BEGINADDR:=ENDADDR:=-1;                                     17001000
            CONESCAN:=TRUE;                                             17002000
            GO XIT;                                                     17003000
ENDSCAN:                                                                17004000
            SOP:=SOP OR OP OR XLATE;                                    17004500
            IF NOT OP THEN FINDOUTPUT(OUTSWITCH,0);                     17005000
            IF XLATE THEN XLATE:=FALSE ELSE                             17006000
            IF TAPETEST OR NOT DISKTEST THEN                            17006100
            BEGIN                                                       17006200
                OCTL:=TRUE;                                             17006300
                BCL:=FALSE;                                             17006400
            END ELSE BCL:=OCTL:=TRUE;                                   17006500
            SAVING:=FALSE;                                              17006600
            IF INSWITCH=2 THEN                                          17007000
            BEGIN                                                       17008000
                DONESCAN:=TRUE;                                         17009000
                SCAN;                                                   17010000
                IF WORD=14 THEN                                         17011000
                BEGIN CLOSE(MAIN); DONETOG:=TRUE; END;                  17012000
                DONESCAN:=FALSE;                                        17013000
            END;                                                        17014000
            IF TAPETEST THEN                                            17016000
            BEGIN                                                       17017000
                IF GETHEUNIT(UNIT,TESTARRAY[0].[27:6]=0) THEN           17018000
                    GO TO IF DONETOG THEN ALLDONE ELSE RETURN;          17019000
                GO FILLTRAN;                                            17020000
            END ELSE IF NOT DISKTEST THEN GO FILLTRAN;                  17021000
            IF BOOLEAN(NT1:=DISKIO(TESTBUFFER,-0,BEGINADDR)).[30:1]     17021100
            THEN GOERROR(49);                                  %140717021200
            DKTYPE:=1+NT1.[28:1];                              %140717022000
            IF NOT AREACLEARED THEN                                     17023000
            FOR IOD:=2 STEP 1 UNTIL 14 DO                      %150117024000
            IF TWOT(IOD,TESTMASK OR RUMASK) THEN               %150117025000
            BEGIN CLEARAREA; GO FILLTRAN; END;                          17026000
        FILLTRAN:                                                       17027000
            IF BCL AND TRANSLATEBUFFER[0]=0 THEN                        17028000
            FILLXLATEBUFFER;                                            17029000
$SET OMIT=NOT DEBUG                                                     17039100
            WRITE(OUTFI,<"TESTARRAY[*]=",//>);                          17039200
            NT1:=REAL(BCL); BCL:=FALSE;                                 17039300
            NT2:=REAL(OCTL); OCTL:=TRUE;                                17039400
```

```
                MOVEANDWRITE(TRUE,64,FALSE,OUTFI,COREADDR(TESTARRAY));  17039500
                BCL:=BOOLEAN(NT1); OCTL:=BOOLEAN(NT2);                  17039600
                WRITE(OUTFI[DBL]); WRITE(OUTFI[DBL]);                   17039700
 $POP OMIT                                                              17039800
    XIT: END OF CONFSCAN;                                               17040000
%***************************************************************************17040100
    PROCEDURE SPOUTCCS;                                                 17040200
        BEGIN                                                           17040300
                                                                        17040400
        COMMENT  PRINTS CONFIDENCE MAINT CCS FROM JUNKBUFFER;           17040500
                                                                        17040600
        INTEGER STREAM PROCEDURE TRUNCATE(BUFFER); VALUE BUFFER;        17040700
            BEGIN                                                       17040800
            LOCAL JUNK,BLANK; LABEL L;                                  17040900
            %                                                           17041000
            SI:=LOC BUFFER; SKIP SB; IF SB THEN                         17041100
            BEGIN TALLY:=1; BLANK:=TALLY; TALLY:=0;END;                 17041200
            SI:=BUFFER;                                                 17041300
            IF SC=ALPHA THEN                                            17041400
        L:      BEGIN                                                   17041500
                SI:=SI-1; IF SC=ALPHA THEN                              17041600
                    BEGIN TALLY:=TALLY+1; GO L; END;                    17041700
                JUNK:=SI; SI:=LOC JUNK; DI:=JUNK; DI:=DI+1;             17041800
                TRUNCATE:=DI; JUNK:=TALLY;                              17041900
                BLANK(JUNK(DS:=LIT " "));                               17042000
                END                                                     17042100
            ELSE TRUNCATE:=SI;                                          17042200
            END;                                                        17042300
            INTEGER I,IOD,SEL1;                                         17042310
                                                                        17042400
            DATIME;                                                     17042500
            COUNT:=((ACCUMULATOR.[33:15]-                               17042600
                    (IOD:=COREADDR(JUNKBUFFER[0]))+                     17043000
                    REAL(ACCUMULATOR.[27:6] GTR 1))                     17044000
                    DIV I:=WBUFF);                                      17045000
            FOR SEL1:=0 STEP 1 UNTIL COUNT DO                           17046000
            BEGIN                                                       17047000
                FUNNYMOVE(I+1,IOD,OUTBUFFER);                           17048000
                IOD:=TRUNCATE(IOD:=IOD+1);                              17049000
                JUNK:=TRUNCATE(-COREADDR(OUTBUFFER[I]));                17050000
                WRITE(OUTFI,WBUFF,OUTBUFFER[*]);                        17051000
            END;                                                        17052000
            WRITE(OUTFI[DBL]);                                          17053000
            WRITE(OUTFI);                                               17054000
        END OF SPOUTCCS;                                                17055000
 $SET OMIT=OMITCOMPILER AND OMITINTERPRETER                             19209999
%***************************************************************************19210000
    PROCEDURE FILLMODIFIERS(COMPAREBUFF);                               19220000
        COMMENT  THIS PROCEDURE FILLS THE MODIFIER TABLE                19220005
                 FOR THE COMPILER OR INTERPRETER (IT IS                 19220010
                 USED DURING INTERPRETATION TO GENERATE                 19220015
                 PATTERNS FROM A PATTERN DESCRIPTION).                  19220020
                 TO ADD A WORD TO THIS TABLE, PLACE IT                  19220025
                 AT THE END OF THE FILL STATEMENT AND                   19220030
                 INCREASE THE VALUE OF NROFMOD (SEQNR,                  19220035
                 22610000) BY ONE;                                      19220040
        ARRAY COMPAREBUFF[*];                                           19230000
        BEGIN                                                           19231000
        UNLOCK(COMPAREBUFF[*]);                                         19232000
        FILL COMPAREBUFF[*] WITH                                        19240000
```

```
                "AB       ",%0                                          19250000
                "BUFFER   ",%1                                          19260000
                "PATTERN  ",%2                                          19270000
                "DOUBLE   ",%3                                          19280000
                "SPACE    ",%4                                          19290000
                "PAGE     ",%5                                          19300000
                "TIMES    ",%6                                          19310000
                "WITH     ",%7                                          19320000
                "USING    ",%8                                          19330000
                "BEGIN    ",%9                                          19340000
                "ON       ",%10                                         19350000
                "ERROR    ",%11                                         19360000
                "GO       ",%12                                         19370000
                "ELSE     ",%13                                         19380000
                "NO       ",%14                                         19390000
                "STOP     ",%15                                         19400000
                "END      ",%16                                         19410000
                "RIPPLE   ",%17                                         19420000
                "BKWD     ",%18                                         19430000
                "ALPHA    ",%19                                         19440000
                "BINARY   ",%20                                         19450000
                "INTO     ",%21                                         19460000
                "FROM     ",%22                                         19470000
                "OCT      ",%23                                         19480000
                "PARITY   ",%24                                         19490000
                "TAPEMARK ",%25                                         19500000
                "GM       ",%26                                         19510000
                "TAPELABE ",%27                                         19520000
                "NOT      ",%28                                         19530000
                "TALLY    ",%29                                         19540000
                "TOGGLE   ",%30                                         19550000
                "TEST     ",%31                                         19560000
                "TRUE     ",%32                                         19570000
                "FALSE    ",%33                                         19580000
                "BOT      ",%34                                         19590000
                "EOT      ",%35                                         19600000
                "THRU     ",%36                                         19610000
                "THEN     ",%37                                         19620000
                "MOD3     ",%38                                         19621000
                "FOR      ",%39                                %140619621100
                "TO       ",%40                                         19621200
                "LSS      ",%41                                         19621300
                "GTR      ",%42                                         19621400
                "LEQ      ",%43                                         19621500
                "GEQ      ",%44                                         19621600
                "NEQ      ",%45                                         19621700
                "EOF      ",%46                                         19621800
                "MEMPARIT ",%47                                         19621900
                "SIZERROR ",%48                                         19622000
                "DATAERR  ",%49                                         19622100
                "BLANKTAP ",%50                                %140319622200
                "NOISE    ",%51                                %140319622300
                "WRDCOUNT ",%52                                %140619622400
                "IOD      ",%53                                %140619622500
                "RESULT   ",%54                                %140619622600
                "++       ";%END                               %140319627000
        LOCK(COMPAREBUFF[*]);                                           19628000
        END;                                                            19628100
%***************************************************************************19629000
%***************************************************************************19630000
```

```
BOOLEAN PROCEDURE PATTERNGENERATOR(CHRS,PATBUFF);                    19640000
VALUE CHRS,PATBUFF; INTEGER CHRS,PATBUFF;                            19650000
      COMMENT  PATTERNGENERATOR HANDLES SYNTAX CHECKING              19650005
               OF PATTERN DESCRIPTIONS DURING COMPILATION            19650010
               OF SIMPL PROGRAMS.  IF "DEBUG" IS SET,               19650015
               THE ROUTINE IS ALSO USED TO ACTUALLY GENERATE        19650020
               THE PATTERNS.  PATTERN DESCRIPTIONS ARE              19650025
               SYNTAX CHECKED AND STORED INTO PDESC[*] DURING       19650030
               COMPILATION.  WHEN PDESC BECOMES FULL, IT            19650035
               IS WRITTEN INTO THE CODE FILE AND THE                19650040
               NEXT PATTERN DESCRIPTION IS PLACED                   19650045
               INTO THE ARRAY BEGINNING AT PDESC[0].                19650050
               AS ALREADY MENTIONED, "PP" IS USED TO                19650055
               KEEP TRACK OF THE STATUS OF PDESC.                   19650060
                                                                    19650065
               THE PARAMETER "CHRS" CONTAINS THE NUMBER             19650070
               OF CHARACTERS TO BE IN THE PATTERN (FIELD            19650075
               WIDTH).  IF CHRS=0, NO FIELD WIDTH WAS               19650080
               SPECIFIED.                                           19650085
                                                                    19650090
               THE PARAMETER "PATBUFF" IS NORMALLY NOT              19650095
               USED DURING COMPILATION.  IF "DEBUG" IS              19650100
               SET, HOWEVER, "PATBUFF" CONTAINS THE                 19650105
               CORE ADDRESS OF THE BUFFER INTO WHICH                19650110
               THE PATTERN IS TO BE PLACED;                         19650115
                                                                    19650120
                                                                    19650125
BEGIN                                                               19660000
%*******************************************************************19660100
INTEGER STREAM PROCEDURE STRINGSCAN(FIRSTSCAN,LASTSCAN,             19660200
PATTERN,MAX,ETOG,OCTL,SV);                                          19660300
VALUE MAX,OCTL,SV;                                                  19660400
   COMMENT  STRINGSCAN IS USED TO SCAN QUOTED STRINGS.              19660405
            IT MANIPULATES FIRSTSCAN AND LASTSCAN IN THE            19660410
            SAME MANNER AS DOES SCANAWORD.  PATTERN POINTS          19660415
            TO THE CORE LOCATION WHERE THE STRING IS TO             19660420
            BE BUILT.  IT IS UPDATED TO POINT TO THE NEXT           19660425
            AVAILABLE CHARACTER LOCATION BEFORE THE ROUTINE         19660430
            IS EXITED.  MAX CONTAINS THE LARGEST NUMBER OF          19660435
            CHARACTERS THAT ARE TO BE SCANNED (IF A QUOTE           19660440
            MARK IS NOT FOUND). ETOG IS PASSED BY NAME              19660445
            AND THE CORRESPONDING ACTUAL PARAMETER IS               19660450
            SET ACCORDING TO THE FINDINGS OF THE ROUTINE            19660455
            AS FOLLOWS:                                             19660460
                                                                    19660465
                1) ETOG=0  A QUOTE MARK WAS ENCOUNTERED             19660470
                           IN MAX OR LSS CHARACTERS.                19660472
                2) ETOG=1  A QUOTE MARK WAS NOT ENCOUNTERED          19660474
                           IN MAX CHARACTERS                        19660476
                3) ETOG=2  THE FIRST CHARACTER IN THE STRING         19660478
                           WAS A QUOTE, THE SECOND WAS NOT.         19660480
                4) ETOG=3  AN OCTAL STRING WAS EXPECTED AND          19660482
                           A NON-OCTAL CHARACTER WAS FOUND          19660484
                           IN THE STRING.                           19660486
                                                                    19660488
            OCTL IS 1 IF AN OCTAL STRING IS EXPECTED.  MAX          19660490
            INDICATES THE MAXIMUM NUMBER OF 6-BIT CHARACTERS        19660492
            TO BE PLACED IN THE OUTPUT STRING.  SV IS TRUE WHEN     19660494
            COMPILING.  THIS IS NECESSARY TO DETERMINE IF           19660496
            OCTAL CHARACTERS SHOULD BE COMPRESSED IN THE OUTPUT     19660498
```

```
                STRING;                                                                 19660500
                                                                                        19660502
        BEGIN                                                                           19660504
        LOCAL TSI,TDI;                                                                  19660600
        LABEL XIT,BADOCT,CHECK,SVOCT;                                                   19660700
        SI:=FIRSTSCAN; DI:=LOC TSI; DS:=WDS;                                            19660800
        SI:=PATTERN; DI:=LOC TDI; DS:=WDS;                                              19660900
        SI:=TSI; DI:=TDI;                                                               19661000
        IF SC="""" THEN                                                                 19661100
           BEGIN SI:=SI+1; TALLY:=1; IF SC="""" THEN                                    19661200
              BEGIN DS:=CHR; SV(DS:=LIT """"); GO XIT; END ELSE                         19661300
              BEGIN                                                                     19661400
              TDI:=DI; DI:=ETOG; DS:=8 LIT "00000002"; DI:=TDI;                         19661500
              GO XIT;                                                                   19661600
              END;                                                                      19661700
           END;                                                                         19661800
        OCTL(MAX(2(IF SC="""" THEN JUMP OUT 3 TO CHECK ELSE                             19661900
        IF SC LSS "0" THEN                                                              19662000
     BADOCT: BEGIN                                                                      19662100
           TDI:=BI; DI:=ETOG; DS:=8 LIT "00000003";                                     19662200
           DI:=TDI; JUMP OUT 3 TO XIT;                                                  19662300
           END ELSE                                                                     19662400
        IF SC GTR "7" THEN GO BADOCT ELSE                                               19662500
           BEGIN                                                                        19662600
           SV(DS:=CHR; JUMP OUT TO SVOCT);                                              19662700
           SKIP 3 SB;                                                                   19662800
           3(IF SB THEN DS:=SET ELSE DS:=RESET; SKIP SB);                               19662900
     SVOCT: END); TALLY:=TALLY+1);                                                      19663000
           JUMP OUT TO CHECK);                                                          19663100
           MAX(IF SC="""" THEN JUMP OUT ELSE                                            19663200
           BEGIN DS:=CHR; TALLY:=TALLY+1; END);                                         19663300
     CHECK:                                                                             19663400
        IF SC="""" THEN                                                                 19663500
           BEGIN                                                                        19663600
           SV(DS:=CHR; JUMP OUT TO XIT);                                                19663700
           SI:=SI+1;                                                                    19663800
           END                                                                          19663900
        ELSE                                                                            19664000
           BEGIN                                                                        19664100
           TDI:=DI; DI:=ETOG; DS:=8 LIT "00000001"; DI:=TDI;                            19664200
           END;                                                                         19664300
     XIT: STRINGSCAN:=TALLY; TSI:=SI; SI:=LOC TSI;                                      19664400
        TDI:=DI; DI:=LASTSCAN; DS:=WDS;                                                 19664500
        SI:=LOC TDI; DI:=PATTERN; DS:=WDS;                                              19664600
        END;                                                                            19664700
      $SET OMIT=OMIT OR NOT DEBUG                                                       19664740
     %*****************************************************************************    19664800
     STREAM PROCEDURE PROPOGATE(P,JUNK,RI,COUNT,RIMODCOUNT);                            19664900
     VALUE RI,COUNT,RIMODCOUNT;                                                         19665000
        COMMENT  PROPOGATE EXPANDS A STRING OF COUNT CHARACTERS                         19665005
                 INTO A STRING OF (RI+1)×COUNT + RIMODCOUNT                             19665007
                 CHARACTERS.  P IS THE ADDRESS OF THE CHARACTER                         19665009
                 FOLLOWING THE STRING.  JUNK IS TEMPORARY STORAGE                       19665011
                 OF AT LEAST COUNT CHARACTERS.  P IS UPDATED TO                         19665013
                 POINT TO THE CHARACTER FOLLOWING THE EXPANDED                          19665015
                 STRING;                                                                19665017
        BEGIN                                                                           19665100
        LOCAL T,TRI,TRMC,TC;                                                            19665200
        SI:=LOC RI; SI:=SI+6; DI:=LOC TRI; DI:=DI+7; DS:=CHR;                           19665300
        SI:=LOC RIMODCOUNT; SI:=SI+6; DI:=LOC TRMC; DI:=DI+7; DS:=CHR;                  19665400
```

```
      SI:=LOC COUNT; SI:=SI+6; DI:=LOC TC; DI:=DI+7; DS:=CHR;                    19665500
      SI:=P; DI:=LOC T; DS:=WDS;                                                19665600
      DI:=JUNK; SI:=T;                                                          19665700
      TC(SI:=SI-32; SI:=SI-32); SI:=SI-COUNT;                                   19665800
      TC(DS:=32 CHR; DS:=32 CHR); DS:=COUNT CHR;                                19665900
      SI:=LOC P; DI:=T; SI:=JUNK;                                               19666000
      TRI(2(32(TC(DS:=32 CHR; DS:=32 CHR); DS:=COUNT CHR;                       19666100
      TC(SI:=SI-32; SI:=SI-32); SI:=SI-COUNT)));                                19666200
      RI(TC(DS:=32 CHR; DS:=32 CHR); DS:=COUNT CHR;                             19666300
      TC(SI:=SI-32; SI:=SI-32); SI:=SI-COUNT));                                 19666400
      TRMC(DS:=32 CHR; DS:=32 CHR);                                             19666500
      DS:=RIMODCOUNT CHR;                                                       19666600
      T:=DI; DI:=P; SI:=LOC T; DS:=WDS;                                         19666700
      END;                                                                      19666800
    %***************************************************************************19666900
    STREAM PROCEDURE RIPPLER(P,RI,INCR); VALUE RI,INCR;                         19667000
      BEGIN                                                                     19667100
      COMMENT  GENERATES A RIPPLE PATTERN RI+1 CHARACTERS LONG                  19667102
               STARTING AT THE CHARACTER PRECEDING THE ONE                      19667104
               ADDRESSED BY P.  THAT CHARACTER IS USED AS A                     19667106
               BASE CHARACTER.  INCR IS THE INCREMENT. P IS                     19667108
               UPDATED TO POINT TO THE CHARACTER FOLLOWING                      19667110
               THE RIPPLE PATTERN;                                              19667112
      LOCAL TP,B,TRI;                                                           19667200
      %                                                                         19667300
      SI:=LOC RI; SI:=SI+6; DI:=LOC TRI; DI:=DI+7; DS:=CHR;                     19667400
      SI:=P; DI:=LOC TP; DS:=WDS;                                               19667500
      SI:=TP; DI:=LOC B; SI:=SI-1; DI:=DI+7; DS:=CHR;                           19667600
      SI:=LOC B; DI:=TP; SI:=SI+7;                                              19667700
      TRI(2(32(TALLY:=B; TALLY:=TALLY+INCR; B:=TALLY; DS:=CHR; SI:=SI-1)));     19667800
      RI(TALLY:=B; TALLY:=TALLY+INCR; B:=TALLY; DS:=CHR; SI:=SI-1);             19667900
      TP:=DI; DI:=P; SI:=LOC TP; DS:=WDS;                                       19668000
      END;                                                                      19668100
    %***************************************************************************19668200
    INTEGER STREAM PROCEDURE SPECIALMOVE(N,A,B); VALUE N,A,B;                   19668300
      COMMENT  MOVES N CHARACTERS FROM A TO B RETURNING THE                     19668302
               VALUE OF DI AFTER THE MOVE WAS COMPLETED;                        19668304
      BEGIN LOCAL NN;                                                           19668400
      SI:=LOC N; SI:=SI+6; DI:=LOC NN; DI:=DI+7; DS:=CHR;                       19668500
      SI:=A; DI:=B; NN(DS:=32 CHR; DS:=32 CHR); DS:=N CHR;                      19668600
      SPECIALMOVE:=DI;                                                          19668700
      END;                                                                      19668800
     $POP OMIT                                                                  19668850
    %***************************************************************************19668900
    INTEGER SL,P,RI,CR,ET,TRI,SIZE;                                             19670000
    INTEGER SST;                                                                19670100
     $SET OMIT=OMIT OR NOT DEBUG                                                19670150
    LABEL PROPIT,SIMPLE;                                                        19670200
     $POP OMIT                                                                  19670250
    LABEL BACK,RIPPAT,BJBACK,PROP,LOOK,FINISHEDSCANING,XIT,PROPED;              19680000
    DEFINE                                                                      19690000
    WORD=WRD(COMPAREBUFF,24)#,                                                  19700000
    PRINTERROR(PRINTERR0R1)=                                                    19710000
      BEGIN                                                                     19720000
      ERROR:=PRINTERROR1;                                                       19730000
      PATTERNGENERATOR:=TRUE;                                                   19740000
      GO XIT;                                                                   19750000
      END#,                                                                     19760000
    OCCTL=23#,                                                                  19770000
    JB=JUNKBUFFER#,                                                             19770100
```

```
RIPLE=17#;                                                          19780000
BOOLEAN BJ,OCTLL,LNG,MINUS,COMPILING,LITPAT;                        19790000
%                                                                   19800000
IF LITPAT:=CHRS=0 THEN CHRS:=120;                                   19801000
CR:=CHRS;                                                           19801500
 $SET OMIT=OMIT OR NOT DEBUG                                        19802000
IF NOT COMPILING:=PATBUFF LSS 0 THEN P:=PATBUFF;                    19810000
 $POP OMIT                                                          19830000
WHILE TRUE DO                                                       19840000
   BEGIN OCTLL:=FALSE;                                          %150119850000
BACK:                                                           %150119860000
   SCAN;                                                            19870000
   IF BJ:=COUNT LSS 0 THEN                                          19880000
   IF LITPAT THEN PRINTERROR(118) ELSE                              19881000
   IF RI:=TESTBUFFER[0] GTR CHRS OR RI=0 THEN                       19890000
   PRINTERROR(107) ELSE ELSE                                        19900000
   IF SPECIALCHR="""" THEN RI:=CHRS ELSE                            19910000
   IF LITPAT THEN PRINTERROR(118) ELSE                              19911000
   IF WORD=RIPLE THEN                                               19920000
      BEGIN                                                         19930000
      RI:=CHRS;                                                     19940000
      OCTLL:=FALSE;                                                 19950000
RIPPAT:                                                             19960000
      ET:=0;                                                        19970000
      SCAN;                                                         19980000
      IF SPECIALCHR NEQ """" THEN                                   19990000
      IF OCTLL:=WORD=0CCTL THEN GO RIPPAT ELSE                      20000000
      PRINTERROR(108);                                              20010000
      FIRSTSCAN:=LASTSCAN;                                          20020000
 $SET OMIT=OMIT OR NOT DEBUG                                        20021000
      IF NOT COMPILING THEN                                         20030000
      COUNT:=STRINGSCAN(FIRSTSCAN,LASTSCAN,P,1,ET,OCTLL,0);         20040000
      IF SAVING THEN                                                20050000
         BEGIN                                                      20060000
         LASTSCAN:=FIRSTSCAN;                                       20070000
$POP OMIT                                                           20071000
         COUNT:=STRINGSCAN(FIRSTSCAN,LASTSCAN,ACCUMULATOR,          20080000
         1,ET,OCTLL,1);                                             20090000
$SET OMIT=OMIT OR NOT DEBUG                                         20091000
         END;                                                       20100000
$POP OMIT                                                           20101000
      IF ET=0 THEN SCAN ELSE PRINTERROR(111);                       20110000
      IF (MINUS:=SPECIALCHR="-") OR SPECIALCHR="+" THEN             20120000
         BEGIN                                                      20130000
         SCAN;                                                      20140000
         IF COUNT LSS 0 THEN                                        20150000
         IF NT6:=TESTBUFFER[0] GTR 63 THEN PRINTERROR(116)          20160000
         ELSE SCAN                                                  20170000
         ELSE PRINTERROR(116);                                      20180000
         END                                                        20190000
      ELSE NT6:=1;                                                  20200000
      CHRS:=CHRS-RI;                                                20201000
$SET OMIT=OMIT OR NOT DEBUG                                         20202000
      IF NOT COMPILING THEN                                         20210000
         BEGIN                                                      20210100
         IF RI GTR 4096 THEN                                        20210200
            BEGIN                                                   20210300
            RIPPLER(P,4095,IF MINUS THEN 63-NT6 ELSE NT6);          20210400
            RI:=RI-4095;                                            20210500
            END;                                                    20210600
```

```
            IF RI GTR 1 THEN                                                    20210700
            RIPPLER(P,RI-1,IF MINUS THEN 63-NT6 ELSE NT6);                      20210800
            END;                                                                20210900
      $POP OMIT                                                                 20220000
            GO LOOK;                                                            20230000
            END                                                                 20240000
         ELSE IF OCTLL:=WORD=OCCTL THEN GO BACK ELSE                            20250000
         PRINTERROR(108);                                                       20260000
         IF BJ THEN                                                             20270000
            BEGIN                                                               20280000
            OCTLL:=BJ:=FALSE;                                                   20290000
      BJBACK: SCAN;                                                             20300000
            IF SPECIALCHR NEQ """ THEN                                          20310000
            IF WORD=RIPLE THEN GO RIPPAT                                        20320000
            ELSE IF OCTLL:=WORD=OCCTL THEN GO BJBACK ELSE                       20330000
            PRINTERROR(108);                                                    20340000
            END;                                                                20350000
         TRI:=0;                                                                20360000
         LNG:=FALSE;                                                            20370000
         WHILE TRI LSS RI DO                                                    20380000
            BEGIN                                                               20390000
            FIRSTSCAN:=LASTSCAN; ET:=0;                                         20400000
      $SET OMIT=OMIT OR NOT DEBUG                                               20401000
            IF NOT COMPILING THEN                                               20410000
            COUNT:=STRINGSCAN(FIRSTSCAN,LASTSCAN,P,MIN(RI-TRI,63),              20420000
            ET,OCTLL,0);                                                        20430000
            IF SAVING THEN                                                      20440000
               BEGIN                                                            20450000
               LASTSCAN:=FIRSTSCAN;                                             20460000
      $POP OMIT                                                                 20461000
               COUNT:=STRINGSCAN(FIRSTSCAN,LASTSCAN,ACCUMULATOR,                20470000
               MIN(RI-TRI,63),ET,OCTLL,1);                                      20480000
      $SET OMIT=OMIT OR NOT DEBUG                                               20481000
               END;                                                             20490000
      $POP OMIT                                                                 20491000
            IF ET=3 THEN PRINTERROR(115) ELSE                                   20500000
            IF ET=2 THEN                                                        20510000
               BEGIN                                                            20520000
               SCAN; IF NOT(SPECIALCHR="""" AND LNG) THEN                       20530000
               PRINTERROR(108) ELSE GO PROP;                                    20540000
               END ELSE                                                         20550000
            IF ET=1 THEN                                                        20560000
            IF TRI:=TRI+COUNT GEQ RI THEN PRINTERROR(107)                       20570000
            ELSE LNG:=TRUE ELSE                                                 20580000
               BEGIN                                                            20590000
      PROP:                                                                     20600000
               IF LITPAT THEN                                                   20610000
                  BEGIN RI:=TRI+COUNT; GO PROPED; END ELSE                      20611000
               IF TRI:=TRI+COUNT LSS RI THEN                                    20620000
      $SET OMIT=OMIT OR NOT DEBUG                                               20620500
               IF NOT COMPILING THEN                                            20621000
                  BEGIN                                                         20621500
                  IF P.[FF]=0 THEN                                              20622000
                  IF TRI MOD 8=0 THEN                                           20623000
                  GO SIMPLE;                                                    20624000
                  IF (SST:=((8×P.[CF])+P.[FF]-TRI)) MOD 8= 0 THEN               20627000
                     BEGIN                                                      20628000
                     IF TRI LSS 8 AND RI GEQ 8×TRI THEN                         20629000
                        BEGIN                                                   20631000
                        JUNK:=0;                                                20631100
```

```
                    PROPOGATE(P,JUNK,7,TRI,0);                                  20632000
                    IF TRI:=8×TRI=RI THEN GO PROPED;                            20633000
                    END                                                         20634000
                ELSE                                                            20635000
                    BEGIN                                                       20636000
PROPIT:                                                                         20636100
                    JUNK:=0;                                                    20636200
                    IF ET:=(COUNT:=RI-TRI) DIV TRI GTR                          20637000
                    4095 THEN                                                   20638000
                        BEGIN PROPOGATE(P,JB,4095,TRI,0);                       20639000
                        ET:=ET-4095;                                            20640000
                        JUNK:=0;                                                20640500
                        END;                                                    20641000
                    PROPOGATE(P,JB,ET,TRI,                                      20642000
                    ENTIER(COUNT MOD TRI));                                     20643000
                    GO PROPED;                                                  20644000
                    END;                                                        20645000
SIMPLE:         VALUEMOVE((RI-TRI) DIV 8,P-TRI DIV 8,P);                        20646000
                P:=P+((RI-TRI) DIV 8);                                          20647000
                IF ET:=(RI-TRI) MOD TRI NEQ 0 THEN                              20648000
                P:=SPECIALMOVE(ET,P-(TRI DIV 8),P);                             20649000
                    GO PROPED;                                                  20650000
                    END ELSE                                                    20651000
                IF TRI LSS 8 THEN                                               20653000
                GO PROPIT                                                       20654000
                ELSE                                                            20655000
                    BEGIN                                                       20656000
                    IF RI-TRI GTR 4095 THEN                                     20657000
                        BEGIN                                                   20658000
                        P:=SPECIALMOVE(4095,(SST DIV 8)&                        20659000
                        (ENTIER(SST MOD 8))[CTF],P);                            20660000
                        TRI:=TRI+4095;                                          20661000
                        END;                                                    20662000
                    P:=SPECIALMOVE(RI-TRI,(SST DIV 8)&                          20663000
                    (ENTIER(SST MOD 8))[CTF],P);                                20664000
                    END;                                                        20665000
                END;                                                            20666000
  $POP OMIT                                                                     20667000
PROPED:                                                                         20670000
            TRI:=RI;                                                            20730000
            END;                                                                20740000
        END;                                                                    20750000
    CHRS:=CHRS-RI;                                                              20760000
    SCAN;                                                                       20770000
LOOK:                                                                           20780000
    IF SPECIALCHR=0 THEN PRINTERROR(112) ELSE                                   20790000
    IF SPECIALCHR=")" THEN GO FINISHEDSCANING;                                  20800000
    END;                                                                        20810000
FINISHEDSCANING:                                                                20820000
  $SET OMIT=OMIT OR NOT DEBUG                                                   20821000
IF NOT (COMPILING OR LITPAT) THEN                                               20830000
IF CHRS NEQ 0 THEN                                                              20840000
    BEGIN                                                                       20850000
    REVERSEMOVE(CR-CHRS,P,(PATBUFF+(CR DIV 8))&                                 20860000
    ENTIER(CR MOD 8)[CTF]);                                                     20861000
    IF RI:=CHRS DIV 8 NEQ 0 THEN                                                20862000
        BEGIN                                                                   20863000
        CLEER(PATBUFF,RI-1);                                                    20864000
        IF TRI:=CHRS MOD 8 NEQ 0 THEN                                           20865000
        CHARACTERMOVE(TRI,PATBUFF,PATBUFF+RI);                                  20866000
```

```
        END                                                                  20867000
      ELSE                                                                   20868000
        BEGIN                                                                20869000
        CLEAR(RI,1);                                                         20870000
        CHARACTERMOVE(CHRS,COREADDR(RI),PATBUFF);                            20871000
        END;                                                                 20872000
    END ELSE ELSE                                                            20880000
  $POP OMIT                                                                  20880500
 IF LITPAT THEN COUNT:=120-CHRS;                                             20881000
XIT: END;                                                                    20890000
  $POP OMIT                                                                  20890100
%#########SCAN BLOCK CODE STARTS HERE#########################################20900000
     RETURN1:                                                                20910000
          IF DONETOG THEN GO ALLDONE;                                        20920000
          CLOSE(CODEFILE);  %INSURANCE....                                   20921000
          IF INSWITCH LSS 10 THEN                                %140220929000
          INPUTBUFFER[0]:=INPUTBUFFER[10]:=REAL(NOT FALSE);                  20930000
          CRD:=NEWSWITCH:=                                       %150120939000
          LSWITCH:=PATCHSWITCH:=ERRORS:=ERROR:=DELAY:=0;         %140520940000
          CLEAR(JUNKBUFFER,60);                                              20950000
          FOR TEST:=63 STEP -1 UNTIL 0 DO                                    20960000
          TESTARRAY[TEST]:=0;                                                20970000
          INP:=FIRSTSCAN:=LASTSCAN:=COREADDR(INPUTBUFFER);                   20980000
          ACCUMULATOR:=COREADDR(JUNKBUFFER);                                 20990000
          FILLRESERVED(COMPAREBUFF);                                         21000000
          IF UNITS[1,0]=0 THEN                                               21010000
          FILLUNITS;                                                         21020000
          HTOG:=NTOG:=PTOG:=UTOG:=EOFTOG:=DONESCAN:=CMENT:=MAKETAPE:=        21040000
          CONF:=LST:=COMPILING:=REV:=SAVETOG:=FALSE;             %140521050000
          PAGE:=SAVING:=TRUE;                                                21060000
               %TO REINITIALIZE AFTER EXITING TEST BLOCKS%                   21070000
     READIT:                                                                 21071000
          IF INSWITCH GTR 9 THEN INSWITCH:=INSWITCH-10 ELSE      %140221072000
          IF INSWITCH NEQ 2 THEN                                             21080000
          WRITE(INFILE,ENTERDATA);                                           21090000
     R1:                                                                     21100000
          SCAN;                                                              21110000
          IF COUNT=0 THEN                                                    21120000
          IF SPECIALCHR="*" THEN                                             21130000
          GO CONTROL ELSE                                                    21140000
          GOPERROR(31) ELSE                                      %150121150000
          IF COUNT LSS 0 THEN GOPERROR(0) ELSE                               21160000
          IF W:=WORD=1 THEN                                                  21170000
               GO CONFIDENCE ELSE                                            21180000
          IF REV:=(W=6 OR (W LEQ 26 AND W GEQ 24)) THEN                      21190000
               GO CONFIDENCE ELSE                                            21191000
          IF W=14 THEN GO ALLDONE ELSE                                       21200000
$SET OMIT=NOT TUNEUP                                             %150121200050
          IF W=34 THEN %DELTA                                    %150121200100
             BEGIN                                               %150121200200
             SCAN;IF SPECIALCHR="=" THEN SCAN;                   %150121200300
             IF COUNT GEQ 0 THEN GOPERROR(27);                   %150121200400
             SDELTA :=TESTBUFFER[0];                             %150121200500
             SCAN;IF COUNT NEQ 0 THEN LASTSCAN:=FIRSTSCAN;       %150121200600
             GO TO R1;                                           %150121200700
             END;                                                %150121200800
$POP OMIT                                                        %150121200900
          GOPERROR(0);                                           %150121210000
     CONTROL:                                                                21230000
          SAVING:=FALSE;                                                     21231000
```

```
          IF CONTROLCARD THEN GO MCCLRUN ELSE                                    21240000
          GO MCCLCOMPILER;                                                       21250000
     CONFIDENCE:                                                                 21260000
          IF NOT CONFSCAN THEN                                                   21270000
          IF TAPETEST OR NOT DISKTEST THEN                                       21280000
               GO RUNTAPETESTS                                                   21280100
          ELSE                                                                   21280200
               BEGIN                                                             21280300
               SPOUTCCS;                                                         21280400
               GO RUNDISKTESTS;                                                  21280500
               END;                                                              21280600
     PERROR:                                                                     21310000
          IF EOFTOG THEN                                                         21320000
          BEGIN                                                                  21330000
               IF CRD=0 THEN GO ALLDONE;                                         21331000
               WRITE(CFILE,EOFF);                                                21340000
               GO EXIT;                                                          21350000
          END ELSE                                                               21360000
          CONTROLCARDERROR;                                          %150121370000
          GO TO IF INSWITCH=2 THEN EXIT ELSE RETURN1;                            21890000
     MCCLCOMPILER:                                                               21900000
     BEGIN                                                                       21920000
$SET OMIT=OMITCOMPILER                                                           21920100
%*************************************************************************     21930000
     INTEGER                                                                     21940000
          THISTEST,                                                              21950000
               %NUMBER OF CONF TEST BEING COMPILED                               21950005
          NEXTUNIT,                                                              21960000
               %NUMBER OF UNITS DECLARED                                         21960005
          NEXTPATTERN,                                                           21970000
               %NUMBER OF PATTERNS DECLARED                                      21970005
          RBUFF, %INDEX OF BUFFER FOR READS WITH PATTERN                         21971000
          U,                                                                     21990000
               %TEMPORARY STORAGE (USUALLY UNIT NR)                              21990005
          SIZE,                                                                  22000000
               %TEMPORARY STORAGE                                                22000005
          DBUFFSIZE,                                                             22001000
               %SIZE OF BUFFER ONE                                               22001005
          NEXTLABEL,                                                             22020000
               %NUMBER OF LABELS DECLARED                                        22020005
          NEXTSUB,                                                               22021000
               %NUMBER OF SUBROUTINES DECLARED                                   22021005
          P,                                                                     22030000
               %TEMPORARY STORAGE (USUALLY PATTERN NR)                           22030005
          B,                                                                     22040000
               %TEMPORARY STORAGE (USUALLY BUFFER NR)                            22040005
          SAVEA,                                                                 22070000
               %REL ADDRESS IN SEG 0 WHEN S NEQ 0                                22070007
          LSEG, %SIZE OF LARGEST SEGMENT                                         22071000
          NEXTSEG,                                                               22080000
               %LARGEST SEG NR THUS FAR                                          22080005
          TIME1;                                                                 22090000
               %VALUE OF TIME(1) WHEN COMPILATION STARTED                        22090005
%*************************************************************************     22090100
     REAL LASTERROR;                                                             22090200
          %SEQUENCE NUMBER OF LAST SYNTAX ERROR                                  22090205
%*************************************************************************     22120000
     FORMAT                                                                      22130000
          LA(X112,8("X")),                                                       22131000
          PATSF("NO. PATTERNS = ",I3),                                           22140000
```

```
            DISKSIZEF("PROG. DISK FILE SIZE = ",I4," SEGS"),                22150000
            EFF("NUMBER OF ERRORS DETECTED=",I4,". COMPILATION TIME=",      22160000
                I5," SECONDS."),                                            22170000
            SEGSIZEF("NO. PGM SEGS = ",I3,"; TOTAL PROG SEG ",              22180000
                     "SIZE = ",I5," WDS");                                  22190000
%***************************************************************************22200000
    DEFINE                                                                  22210000
            ERRORMAX=80#, %NUMBER OF SYNTAX ERROR MSGS...                   22211000
            LUNIT=0#,                                                       22220000
            BUFF=1#,                                                        22230000
            PAT=2#,                                                         22240000
            DUBLE=3#,                                                       22250000
            SPCE=4#,                                                        22260000
            WTH=7#,                                                         22270000
            USING=8#,                                                       22280000
            NIGEB=9#,                                                       22290000
            ON=10#,                                                         22300000
            ERR=11#,                                                        22310000
            GOGO=12#,                                                       22320000
            ESLE=13#,                                                       22330000
            NONO=14#,                                                       22340000
            STP=15#,                                                        22350000
            RIPLE=17#,                                                      22360000
            OCCTL=23#,                                                      22370000
            PAR=24#,                                                        22380000
            TPMRK=25#,                                                      22390000
            TLLY=29#,                                                       22400000
            TGLE=30#,                                                       22410000
            TST=31#,                                                        22420000
            EURT=32#,                                                       22430000
            ESLAF=33#,                                                      22440000
            THRU=36#,                                                       22450000
            THN=37#,                                                        22460000
            MOD3=38#,                                                       22461000
            NOE=51#,                                              %140322462000
            PGE=5#;                                                         22470000
%***************************************************************************22480000
    ARRAY EDOC[0:MAXSEGS-1,0:511];                                          22490000
                                                                            22490005
    COMMENT  USED TO HOLD THE EMITTED CODE.  THE ROWS OF                    22490010
             THE ARRAY CORRESPOND TO THE SEGMENTS IN THE                    22490020
             SIMPL PROGRAM.  SIMPL INSTRUCTIONS ARE A                       22490030
             FULL WORD IN LENGTH.  I/O INSTRUCTIONS                         22490040
             CONSIST OF TWO WORDS.                                          22490050
                                                                            22490060
    THE FORMAT OF THE INSTRUCTIONS IS AS FOLLOWS:                           22490070
                                                                            22490080
    INPUT TALLY INSTRUCTION                                                 22490090
    ----- ----- -----------                                                 22490100
                                                                            22490110
    [0:42]=0                                                                22490120
    [42:6]=1                                                                22490130
                                                                            22490140
        READS INPUT FILE AND ASSIGNS "TALLY" THE                            22490150
        VALUE OF INTEGER FOUND THERE.                                       22490160
        (DEBUGGING INSTRUCTION ONLY)                                        22490170
                                                                            22490180
    PRINT INSTRUCTION                                                       22490190
    ----- -----------                                                       22490200
                                                                            22490210
```

```
[0:1]=0                                                                  22490220
[1:1]=0  PRINT PATTERN                                                   22490230
     =1  PRINT BUFFER                                                    22490240
[2:1]=  1, DISPLAY TALLY                                                 22490245
[3:5]=0  USE [8:10] OR SIZE OF DISPLAYED ITEM FOR SIZE                   22490250
     =30 "DISPLAY THRU TALLY"                                            22490260
     =31 "DISPLAY THRU WRDCOUNT"                                         22490270
[8:10]=0 DISPLAY ENTIRE ITEM                                             22490280
      =1023, SEE [3:5]                                                   22490290
      =OTHERWISE, USE AS SIZE FOR DISPLAY                                22490300
[FF]  =3"77777", DISPLAY NO DATA                                         22490310
      =OTHERWISE, PATTERN OR BUFFER NUMBER                               22490320
[33:1]=0, EDIT DATA (DISPLAY STATEMENT)                                  22490330
      =1, DO NOT EDIT DATA (PRINT STATEMENT)                             22490340
[34:6]=0                                                                 22490350
[40:1]=1, PAGE BEFORE PRINTING                                           22490360
[41:1]=0, SINGLE SPACE                                                   22490370
      =1, DOUBLE SPACE                                                   22490380
[42:6]=2                                                                 22490390
                                                                         22490400
END OF LOOP INSTRUCTION                                                  22490410
--- -- ---- ----------                                                  22490420
                                                                         22490430
[0:1]=0                                                                  22490440
[1:1]=0, NORMAL END OF LOOP                                              22490450
     =1, END OF TEST LOOP  (* TIMES)                                     22490460
[2:16]=0                                                                 22490470
[FF] = RELATIVE ADDRESS OF BEGINNING OF LOOP INSTRUCTION + 1             22490480
[SCF]= 0, SUBROUTINE EXIT INSTRUCTION                                    22490490
     = OTHERWISE, REPETATIVE INDICATOR                                   22490500
[IFL]= 3                                                                 22490510
                                                                         22490520
FILL INSTRUCTION                                                         22490530
---- ----------                                                          22490540
                                                                         22490550
[0:18]=0                                                                 22490560
[FF]  =PATTERN NUMBER                                                    22490570
[SCF] =BUFFER NUMBER                                                     22490580
[IFL] =4                                                                 22490590
                                                                         22490600
ROTATE INSTRUCTION                                                       22490610
------ ----------                                                        22490620
                                                                         22490630
[0:1]=0                                                                  22490640
[1:1]=0, ROTATE RIGHT                                                    22490650
     =1, ROTATE LEFT                                                     22490660
[2:16]=0                                                                 22490670
[FF]=NUMBER OF CHARACTERS TO ROTATE                                      22490680
[SCF]=BUFFER NUMBER                                                      22490690
[IFL]=5                                                                  22490700
                                                                         22490710
SHIFT INSTRUCTION                                                        22490720
----- ----------                                                         22490730
                                                                         22490740
[0:1]=0                                                                  22490750
[1:1]=0, SHIFT LEFT                                                      22490760
     =1, SHIFT RIGHT                                                     22490770
[2:16]=0                                                                 22490780
[FF]=NUMBER OF CHARACTERS TO SHIFT                                       22490790
[SCF]=BUFFER NUMBER                                                      22490800
```

```
[IFL]=6                                                                  22490810
                                                                         22490820
COMPARE INSTRUCTION                                                      22490830
------- -----------                                                     22490840
                                                                         22490850
[0:1]=0                                                                  22490860
[1:1]=0, DUMMY COMPARE STATEMENT                                         22490870
     =1, CONDITIONAL ERROR CODE FOLLOWS                                  22490880
[2:1]=1, THEN NO ERROR OUTPUT ON COMPARE ERROR                     %140322490885
[3:1]=1, THEN NOISE ON ERROR OUTPUT ON COMPARE ERROR               %140322490890
[4:14]=0                                                           %140322490895
[FF] =PATTERN NUMBER + MAXBUFFS, IF PATTERN COMPARE                      22490900
     =BUFFER NUMBER OF FIRST BUFFER, OTHERWISE                           22490910
[SCF]=BUFFER NUMBER OF SECOND BUFFER                                     22490920
[IFL]=7                                                                  22490930
                                                                         22490940
BRANCH INSTRUCTION                                                       22490950
------ -----------                                                     22490960
                                                                         22490970
[0:18] = 0                                                               22490980
[FF]   = SEGMENT TO BRANCH TO                                            22490990
[SCF]  = RELATIVE ADDRESS TO BRANCH TO                                   22491000
[IFL]  = 8                                                               22491010
                                                                         22491020
JUMP OUT OF SUBROUTINE INSTRUCTION                                       22491030
---- --- -- ---------- ----------                                       22491040
                                                                         22491050
[0:42]=0                                                                 22491060
[IFL] =9                                                                 22491070
                                                                         22491080
     NOTE:  THIS INSTRUCTION IS EXECUTED PRIOR TO                        22491090
            BRANCHING FROM A SUBROUTINE TO A LABEL                       22491100
            IN SEGMENT 0.  IT CAUSES THE PSEUDO                          22491110
            STACK TO BE REINITIALIZED (SIMILAR TO                        22491120
            STACK ACTION IN ALGOL PROGRAM WHEN                           22491130
            BRANCHING FROM PROCEDURE TO OUTER                            22491140
            BLOCK LABEL).                                                22491150
                                                                         22491160
JUMP OUT INSTRUCTION                                                     22491170
---- --- -----------                                                     22491180
                                                                         22491190
[0:1]=0                                                                  22491200
[1:1]=0, STOP DOOP LOOP (BRANCH TO END OF CURRENT DO LOOP)               22491210
                                                                         22491220
     NOTE:  [1:1] IS SET WHEN INSTRUCTION IS                             22491230
            USED TO ADJUST PSEUDO STACK PRIOR                            22491240
            TO BRANCHING FROM A DO LOOP TO A                             22491250
            LABEL OUTSIDE OF THE LOOP.                                   22491260
                                                                         22491270
[1:1]=1, INHIBIT BRANCH TO END OF LOOP                                   22491280
[2:31]=0                                                                 22491290
[SCF] =0, IF NOT [1:1]                                                   22491300
      =NUMBER OF LOOPS TO JUMP OUT OF, IF [1:1]                          22491310
[IFL] =10                                                                22491320
                                                                         22491330
I/O INSTRUCTION (FIRST WORD)                                             22491340
--- ---------- -----------                                               22491350
                                                                         22491360
[0:1]=0                                                                  22491370
[1:1]=0, NO ERROR CLAUSE IN I/O STATEMENT                                22491380
```

```
      =1, CONDITIONAL ERROR CODE FOLLOWS                                22491390
[2:1]=0, FULL OR ABREVIATED ERROR ANALYSIS                              22491400
      =1, NO ERROR ANALYSIS                                             22491410
[3:5]=INTERNAL UNIT NUMBER                                              22491420
[8:10]=SIZE OF I/O OPERATION                                            22491430
                                                                        22491440
      NOTE:  IF SF=1023, (TALLY+7) DIV 8 IS USED FOR SIZE               22491450
             IF SF=1020 AND OPERATION IS A READ, NO SIZE                22491460
                    CHECKING IS PERFORMED                               22491470
[18:7]=SAME AS TAPE I/O DESCRIPTOR FOR THIS OPERATION                   22491480
[25:8]=EXPECTED ERROR FIELD                                             22491490
[SCF] =0                                                                22491500
[IFL] =11                                                               22491510
                                                                        22491520
I/O INSTRUCTION (SECOND WORD)                                           22491530
--- ----------- -------------                                           22491540
                                                                        22491550
[0:1]=0                                                                 22491560
[1:1]=0, FULL OR NO ERROR ANALYSIS                                      22491570
      1, ABREVIATED ERROR ANALYSIS                                      22491580
[2:1]=1, THEN NOISE ON ERROR OUTPUT                          %140322491585
[3:5]=0                                                      %140322491590
[8:10]=0, IF NOT SPACE OPERATION                                        22491600
      =0 AND SPACE OPERATION, INHIBIT SIZE CHECKING                     22491610
      NEQ 0 AND SPACE OPERATION, SIZE OF EXPECTED REC. IN WDS           22491620
[FF]  =3"77777", NO PATTERN USED                                        22491630
      =OTHERWISE, PATTERN NUMBER                                        22491640
[SCF] =BUFFER NUMBER                                                    22491650
                                                                        22491660
       NOTE:  IF SCF=3"777" , PATBUFF[*] IS USED                        22491670
                                                                        22491675
[IFL] =1, READ                                                          22491680
      =2, WRITE                                                         22491690
      =3, SPACE                                                         22491700
      =4, ERASE                                                         22491710
      =5, REWIND                                                        22491720
                                                                        22491730
GO TEST INSTRUCTION                                                     22491740
-- ---- -----------                                                     22491750
                                                                        22491760
[0:42]=0                                                                22491770
[IFL] =12                                                               22491780
                                                                        22491790
FILL TALLY INSTRUCTION                                                  22491800
---- ----- -----------                                                  22491810
                                                                        22491820
[0:1]=0                                                                 22491830
[1:1]=0, REPLACE TALLY WITH NEXT INSTRUCTION                            22491840
      =1, REPLACE TALLY WITH TALLY+NEXT INSTRUCTION                     22491850
[2:40]=0                                                                22491860
[IFL]=13                                                                22491870
                                                                        22491880
FILL TOGGLE INSTRUCTION                                                 22491890
---- ------ -----------                                                 22491900
                                                                        22491910
[0:18]=0                                                                22491920
[FF]  =NEW VALUE OF TOGGLE                                              22491930
[SCF] =1                                                                22491940
[IFL] =13                                                               22491950
                                                                        22491960
```

```
TEST TOGGLE INSTRUCTION                                                  22491970
---- ------ -----------                                                 22491980
                                                                         22491990
[0:33]=0                                                                 22492000
[SCF] =2                                                                 22492010
[IFL] =13                                                                22492020
                                                                         22492030
TEST TALLY INSTRUCTION                                                   22492040
---- ----- -----------                                                   22492050
                                                                         22492060
NOTE:  CONDITIONAL STATEMENTS GENERATE CODE AS FOLLOWS                   22492070
                                                                         22492080
     TEST INSTRUCTION                                                    22492090
     CONSTANT                                                            22492100
     BRANCH INSTRUCTION (BRANCH TO "ELSE" PART)                          22492110
     INSTRUCTION                                                         22492120
        .                                                                22492130
        .                                                                22492140
     BRANCH INSTRUCTION (BRANCH AROUND "ELSE" PART)                      22492150
     INSTRUCTION                                                         22492160
        .                                                                22492170
        .                                                                22492180
IF THE TEST INSTRUCTION YIELDS A POSITIVE RESULT                         22492190
"A" IS INCREMENTED BY 1, THUS SKIPPING THE FIRST                         22492200
BRANCH INSTRUCTION.                                                      22492210
                                                                         22492220
[0:18]=0                                                                 22492230
[FF]  =0, TEST TALLY = CONSTANT                                          22492240
      =1, TEST TALLY LSS CONSTANT                                        22492250
      =2, TEST TALLY GTR CONSTANT                                        22492260
      =3, TEST TALLY LEQ CONSTANT                                        22492270
      =4, TEST TALLY GEQ CONSTANT                                        %140622492280
      =5, TEST TALLY NEQ CONSTANT                                        %140622492285
[SCF] =3                                                                 22492290
[IFL] =13                                                                22492300
                                                                         22492310
TEST MOD III I/O-S INSTRUCTION                                           22492320
---- --- --- ----- -----------                                           22492330
                                                                         22492340
NOTE:  THIS INSTRUCTION DOES NOT REQUIRE A FOLLOWING CONSTANT            22492350
                                                                         22492360
[0:33]=0                                                                 22492370
[SCF] =4                                                                 22492380
[IFL] =13                                                                22492390
                                                                         22492400
I/O ERROR TEST INSTRUCTION                                               22492410
-------------------------                                                22492420
                                                                         22492430
NOTE:  DOES NOT REQUIRE FOLLOWING CONSTANT                               22492440
                                                                         22492450
[0:24]=0                                                                 %140622492460
[24:9]=   BUFFER NUMBER IF SPECIFIED OTHERWISE 0                         %140622492465
[SCF] =5, TEST FOR PARITY D=20                                           %140122492470
      =6, TEST FOR BOT                                                   22492480
      =7, TEST FOR EOT                                                   22492490
      =8, TEST FOR EOF (D=21)                                            22492500
      =9, MEMORY PARITY                                                  22492510
      =10, TEST FOR SIZE ERROR                                           22492520
      =11, TEST FOR DATA ERROR                                           22492530
      =12, TEST FOR BLANK TAPE                                           22492540
```

```
[IFL] =13

BEGINNING OF LOOP INSTRUCTION
--------- -- ---- -----------

[0:24]=0
[24:9]=RELATIVE ADDRESS OF END OF THIS LOOP
[SCF ]=1
[IFL ]=0

ENTER SUBROUTINE INSTRUCTION
----- ---------- -----------

[0:1]=0
[1:1]=1
[2:22]=0
[24:9]=RELATIVE ADDRESS OF END OF SUBROUTINE
[SCF ]=1
[IFL ]=0

WAIT INSTRUCTION
---- -----------

[0:33]=0
[SCF ]=NUMBER OF SECONDS TO WAIT
[IFL ]=14

DISPLAY INSTRUCTION
------- -----------

[0:1 ]=0
[1:2 ]=0  NO THRU OR FROM MODIFIERS
      =1  FROM
      =2  THRU
[3:3 ]=0
[6:2 ]=0  <INTEGER> FOLLOWING THRU OR FROM
      =1  <USER VARIABLE> FOLLOWING THRU OR FROM
      =2  <BUFFER VARIABLE> FOLLOWING THRU OR FROM
[8:10]=0  USE SIZE OF VARIABLE SPECIFIED IN [6:2]
      =   OTHERWISE <INTEGER> SIZE
[18:6]=   R=RELATIVE INDEX OF <USER VARIABLE>
[24:9]=   BUFFER OR PATTERN NUMBER
[33:1]=1  THEN PAGE BEFORE PRINTING
[34:1]=0  SINGLE SPACE
      =1  DOUBLE SPACE
[35:1]=0  DON"T EDIT (PRINT STATEMENT)
      =1  USE EDIT(DISPLAY STATEMENT)
[36:3]=   <BUFFER VARIABLE> TYPE
      =0  WRDCOUNT
      =1  IOD
      =2  RESULT
[39:3]=   DISPLAY TYPE
      =0  NULL
      =1  BUFFER
      =2  PATTERN
      =3  <USER VARIABLE>  (TALLY)
      =4  <BUFFER VARIABLE>  (SPECIFIED IN [36:3])
[IFL ]=15

;
```

```
22492550
22492560
22492570
22492580
22492590
22492600
22492610
22492620
22492630
22492640
22492650
22492660
22492670
22492680
22492690
22492700
22492710
22492720
22492730
22492740
22492750
22492755
22492760
22492765
22492770
22492775
22492780
%140622492785
%140622492790
%140622492795
%140622492800
%140622492805
%140622492810
%140622492815
%140622492820
%140622492825
%140622492830
%140622492835
%140622492840
%140622492845
%140622492850
%140622492855
%140622492860
%140622492865
%140622492870
%140622492875
%140622492880
%140622492885
%140622492890
%140622492895
%140622492900
%140622492905
%140622492910
%140622492915
%140622492920
%140622492925
%140622492930
%140622492935
%140622492940
%140622492945
```

```
      ARRAY ERRMESS[0:((ERRORMAX+19) DIV 20)-1,0:139];                    22493000
                                                                          22493100
      COMMENT  THIS ARRAY HOLDS THE SYNTAX ERROR MESSAGE                  22493200
               DESCRIPTIONS.  IT IS NOT FILLED UNTIL A                    22493300
               SYNTAX ERROR OCCURS (SEE FILLERRORMESS BELOW);             22493400
%*************************************************************************22500000
      DEFINE                                                              22510000
           NROFRESERVED=25#,                                              22520000
           MAXLABELS=32#,                                                 22530000
           LNAMES[LNAMES1]=LABELS[0,LNAMES1]#,                            22540000
           %LNAMES[L] CONTAINS THE NAME OF LABEL L                        22540010
           LABELS[LABELS1]=LABELS[1,LABELS1]#,                            22550000
           %THE FORMAT OF LABELS[L] CHANGES AS INFORMATION CONCERNING     22550010
           %THE LOCATION OF THE LABEL IS KNOWN, AS FOLLOWS:               22550020
           %                                                              22550030
           %     1) LABEL SEEN IN GO TO STATEMENT BUT NOT YET FOUND       22550040
           %                                                              22550050
           %          [0:8]=0                                           22550060
           %          [SF ]=MAXIMUM NEST LEVEL FOR LABEL                22550070
           %          [FF ]=SEGMENT OF LAST BRANCH INSTRUCTION FOR      22550080
           %               THIS LABEL                                   22550090
           %          [CF ]=RELATIVE ADDRESS OF LAST BRANCH INSTRUCTION 22550100
           %               FOR THIS LABEL                               22550110
           %                                                            22550120
           %     2) LABEL SEEN (LOCATION KNOWN)                         22550130
           %                                                            22550140
           %          [0:1]=0                                           22550150
           %          [1:1]=1                                           22550160
           %          [2:1]=0                                           22550170
           %          [3:6]=SEGMENT WHERE LABEL IS LOCATED              22550180
           %          [9:9]=REL ADDRESS WHERE LABEL IS LOCATED          22550190
           %          [18:9]=NEST LEVEL OF LABEL                        22550200
           %          [27:6]=SEGMENT OF LAST BRANCH INSTRUCTION         22550210
           %               PRIOR TO OCCURANCE OF LABEL                  22550220
           %          [CF  ]=REL ADDRESS OF LAST BRANCH INSTRUCTION     22550230
           %               PRIOR TO OCCURANCE OF LABEL (IF LABEL        22550240
           %               OCCURS PRIOR TO ANY GO TO STATEMENTS         22550250
           %               FOR THAT LABEL, [CF]=3"77777")               22550260
           %                                                            22550270
      PNAMES[PNAMES1]=PATTERNS[1,PNAMES1]#,                             22560000
      %PNAMES[P] CONTAINS THE NAME OF PATTERN P.  IF PATTERN            22560010
      %P IS NOT NAMED, PNAMES[P] CONTAINS THE ALPHA REPRESENTATION      22560020
      %OF P, LEFT JUSTIFIED WITH FOLLOWING BLANKS(" E.G.,               22560030
      % "13      " FOR PATTERN 13)                                      22560040
      %                                                                 22560050
      %PATTERNS[0,*] DOES NOT HAVE A DEFINED NAME. THE FORMAT           22560060
      %OF PATTERNS[0,P] IS AS FOLLOWS:                                  22560070
      %                                                                 22560080
      %    [0:1]=0                                                      22560090
      %    [1:1]=0, NON-TAPELABEL PATTERN                               22560100
      %         =1, TAPE LABEL PATTERN                                  22560110
      %    [2:6]=0,                                                     22560120
      %    [8:10]=SIZE OF PATTERN IN WORDS                              22560130
      %    [18:5]=INDEX INTO PDESC[*] WHERE DESCRIPTION OF              22560140
      %          P STARTS                                               22560150
      %    [23:10]=RECORD NUMBER IN CODE FILE WHERE DESCRIPTION         22560160
      %          OF P IS LOCATED                                        22560170
      %    [CF   ]=SIZE OF PATTERN IN CHARACTERS (IF 0, PATTERN         22560180
      %          DESCRIPTION DID NOT SPECIFY A FIELD WIDTH              22560190
      %                                                                 22560200
```

```
          BNAMES[BNAMES1]=BUFFERS[1,BNAMES1]#,                                  22570000
          %BNAMES[0]=BNAMES[1]=0                                                22570010
          %FOR B GEQ 2, BNAMES[B] CONTAINS THE NAME OF BUFFER B                 22570020
          %                                                                     22570030
          %BUFFERS[0,*] DOES NOT HAVE A DEFINED NAME                            22570040
          %ITS FORMAT IS AS FOLLOWS                                             22570050
          %                                                                     22570060
          %     [0:1]=0                                                         22570070
          %     [1:1]=1, BUFFER OCCURS IN A SHIFT OR ROTATE STMT                22570072
          %     [2:6]=0                                                         22570074
          %     [SF] =SIZE OF BUFFER                                            22570080
          %     [FF] =3"77777"                                                  22570090
          %     [CF] =0                                                         22570092
          %                                                                     22570094
          SUBMAX=62#,                                                           22570100
          SUBR[SUBR1]=SEGDICT[SUBR1].[CF]#,                                     22570200
          %SUBR[S] CONTAINS THE SEGMENT NUMBER OF SUBROUTINE S                  22570205
          SUBNAMES[SUBNAMES1]=SBS[SUBNAMES1]#,                                  22570300
          %SUBNAME[S] CONTAINS THE NAME OF SUBROUTINE S                         22570305
          WORD=WRD(COMPAREBUFF,NROFMOD)#,                                       22580000
          CODE[CODE1]=EDOC[S,CODE1]#,                                           22590000
          MAXLEVELS=9#,                                                         22600000
          NROFMOD=55#;                                                %140622610000
     %**************************************************************************22620000
          ARRAY                                                                 22630000
          RESERVED[0:NROFRESERVED-1],                                           22650000
                    %VERB TABLE                                                 22650010
          LAYBELS[0:1,0:MAXLABELS-1],                                           22660000
          SEGDICT[0:MAXSEGS-1],                                                 22670000
          %                                                                     22670005
          %FORMAT OF SEGDICT[S] IS AS FOLLOWS                                   22670010
          %                                                                     22670015
          %     [0:1]=0                                                         22670020
          %     [1:1]=0 , NORMAL SEG                                            22670025
          %          =1 , SUBROUTINE SEGMENT                                    22670030
          %     [2:6]=0                                                         22670035
          %     [8:10]=SIZE OF SEGMENT                                          22670040
          %     [FF   ]=LOCATION OF SEGMENT START IS CODE FILE                  22670045
          %     [CF   ]=SEGMENT NUMBER OF SUBROUTINE S                          22670050
          %                                                                     22670055
          SBS[0:SUBMAX-1],                                                      22671000
          BUFFERS[0:1,0:MAXBUFFS],                                              22680000
          PATTERNS[0:1,0:MAXPATTERNS-1],                                        22690000
          UNITABLE[0:1,0:17];                                                   22700000
     %**************************************************************************22700100
          PROCEDURE FILLERRORMESS(A); ARRAY A[*,*];                             22700200
          BEGIN                                                                 22700300
          FILL A[0,*] WITH                                                      22700400
     %                                                                          22700500
          2,"STATEMEN","T MAY NO","T BEGIN ","WITH A N","ON-ALPHA",             22700600
               " CHR    ",                                                      22700700
          3,"DO LOOPS"," NESTED ","MORE THA","N 8 DEEP","         ",            22700800
               "        ",                                                      22700900
          4,"MISSING ","OR INVAL","ID LOOP ","REPETITI","VE INDIC",             22701000
               "ATOR    ",                                                     22701100
          5,"LOOP REP","ETITIVE ","INDICATO","R GTR 51","2        ",           22701200
               "        ",                                                     22701300
          6,"MISSING ","TIMES IN"," DO LOOP","         ","         ",           22701400
               "        ",                                                     22701500
          7,"MISSING ","END OF L","OOP     ","         ","         ",           22701600
```

```
        "       ",                                                      22701700
    8,"STATEMEN","T BEGINS","  WITH AN","  INVALID","  VERB   ",       22701800
        "       ",                                                      22701900
  100,"CONSTRUC","T REQUIR","ES PREDE","CLARED P","ATTERN  ",          22702000
        "       ",                                                      22702100
  101,"MISSING ","PATTERN ","IDENTIFI","ER      ","       ",          22702200
        "       ",                                                      22702300
  103,"MORE THA","N 64 PAT","TERNS DE","CLARED  ","       ",          22702400
        "       ",                                                      22702500
  105,"FIELD WI","DTH TOO ","LARGE   ","       ","       ",          22702600
        "       ",                                                      22702700
  106,"MISSING ","RIGHT PA","RENTHESI","S IN PAT","TERN DES",          22702800
        "RIPTION ",                                                     22702900
  107,"INVALID ","FIELD WI","DTH IN P","ATTERN D","ESCRIPTI",          22703000
        "ON      ",                                                     22703100
  108,"MISSING ","QUOTE IN","  PATTERN","  DESCRIP","TION    ",        22703200
        "       ",                                                      22703300
  111,"MISSING ","QUOTE IN","  RIPPLE ","PATTERN ","DESCRIPT",        22703400
        "ION     ",                                                     22703500
  112,"MISSING ","DELIMITE","R IN PAT","TERN DES","CRIPTION",          22703600
        "       ",                                                      22703700
  115,"INVALID ","CHARACTE","R IN OCT","AL STRIN","G       ",          22703800
        "       ",                                                      22703900
  116,"INVALID ","INCREMEN","T IN RIP","PLE PATT","ERN DESC",          22704000
        "RIPTION ",                                                     22704100
  117,"PATTERN ","DESCRIPT","ION LONG","ER THAN ","240 CHAR",          22704200
        "ACTERS  ",                                                     22704300
  118,"MISSING ","FIELD WI","DTH     ","       ","       ",          22704310
        "       ";                                                      22704320
    LOCK(ERRMESS[0,*]);                                               22704325
    FILL A[1,*] WITH                                                  22704330
  119,"MISSING ","SEMICOLO","N OR END","       ","       ",          22704400
        "       ",                                                      22704500
  130,"MISSING ","FILE IDE","NTIFIER ","IN TAPE ","LABEL EQ",          22704700
        "UATION  ",                                                     22704800
  160,"DECLARED","  LABEL D","ID NOT A","PPEAR   ","       ",          22704900
        "       ",                                                      22705000
  161,"MISSING ","LABEL ID","ENTIFIER","       ","       ",          22705100
        "       ",                                                      22705200
  162,"SUBROUTI","NE NOT D","ECLARED ","       ","       ",          22705300
        "       ",                                                      22705400
  163,"GO TO ST","ATEMENT ","FOR THIS","LABEL IS","NOT IN T",          22705500
        "HIS LOOP",                                                     22705600
  164,"CONSTRUC","T ONLY A","VAILABLE","  IN CONF","IDENCE P",          22705700
        "ROGRAMS ",                                                     22705800
  165,"GO TO ST","ATEMENT ","NOT IN S","AME DO L","OOP AS L",          22705900
        "ABEL    ",                                                     22706000
  200,"MISSING ","BUFFER I","DENTIFIE","R       ","       ",          22706100
        "       ",                                                      22706200
  201,"MORE THA","N 8 BUFF","ERS DECL","ARED    ","       ",          22706300
        "       ",                                                      22706400
  202,"RESERVED","  WORDS M","AY NOT B","E USED A","S IDENTI",          22706410
        "FIERS   ",                                                     22706420
  203,"IDENTIFI","ER LONGE","R THAN 8","  CHRS   ","       ",          22706430
        "       ",                                                      22706440
  303,"PATTERN ","DECLARED","  MORE TH","AN ONCE ","       ",%140      22706500
        "       ",                                                %140  22706600
  304,"PATTERN ","IN INPUT","  STATEME","NT ALREA","DY DECLA",          22706700
        "RED     ",                                                     22706800
  305,"UNRECOGN","IZED WOR","D IN INP","UT STATE","MENT    ",          22706900
```

```
        "       ",
306,"INVALID ","SIZE IN ","DISPLAY ","OR PRINT"," STATEME",
        "NT     ",
401,"INVALID ","DISPLAY ","OR PRINT"," MODIFIE","R      ",
        "       ",
402,"DISPLAY ","OR PRINT"," MODIFIE","R APPEAR","S TWICE ",
        "       ",
500,"INVALID ","FILL STA","TEMENT  ","        ",
        "       ","      ",
501,"MISSING ","WITH IN ","FILL STA","TEMENT  ","        ",
        "       ";
  LOCK(ERRMESS[1,*]);
  FILL A[2,*] WITH
502,"MISSING ","PATTERN ","PART IN ","FILL STA","TEMENT  ",
        "       ",
503,"MISSING ","INTEGER ","IN FILL ","TALLY ST","ATEMENT ",
        "       ",
504,"INVALID ","FILL TOG","GLE STAT","EMENT   ","        ",
        "       ",
601,"MISSING ","BUFFER P","ART IN R","OTATE ST","ATEMENT ",
        "       ",
602,"INVALID ","INCREMEN","T IN ROT","ATE STAT","EMENT   ",
        "       ",
603,"MISSING ","INCREMEN","T IN ROT","ATE STAT","EMENT   ",
        "       ",
604,"MISSING ","+ OR - I","N ROTATE"," STATEME","NT      ",
        "       ",
701,"MISSING ","BUFFER P","ART IN S","HIFT STA","TEMENT  ",
        "       ",
702,"INVALID ","INCREMEN","T IN SHI","FT STATE","MENT    ",
        "       ",
703,"MISSING ","INCREMEN","T IN SHI","FT STATE","MENT    ",
        "       ",
704,"MISSING ","+ OR - I","N SHIFT ","STATEMEN","T       ",
        "       ",
751,"INTO APP","EARS TWI","CE IN RE","AD STATE","MENT    ",
        "       ",
753,"MISSING ","BUFFER P","ART IN W","RITE STA","TEMENT  ",
        "       ",
754,"MISSING ","PATTERN ","PART IN ","WRITE ST","ATEMENT ",
        "       ",
759,"INVALID ","READ MOD","IFIER   ","        ",
        "       ","      ",
771,"INVALID ","UNIT MNE","MONIC   ","        ",
        "       ","      ",
772,"INVALID ","SPACE MO","DIFIER  ","        ",
        "       ","      ",
773,"INVALID ","WRITE MO","DIFIER  ","        ",
        "       ","      ",
777,"MISSING ","BUFFER P","ART IN R","EAD STAT",
        "EMENT  ","      ",
780,"INVALID ","SIZE FOL","LOWING T","HRU     ",
        "       ","      ";
  LOCK(ERRMESS[2,*]);
  FILL A[3,*] WITH
781,"NUMBER F","OLLOWING"," THRU EX","CEEDS BU",
        "FFER SIZ","E       ",
800,"MISSING ","WITH IN ","COMPARE ","STATEMEN",
        "T      ","      ",
801,"MISSING ","BUFFER O","R PATTER","N PART I",
```

```
        "N COMPAR","E STAT. ",                                          22712700
810,"MISSING ","ERROR AF","TER ON  ","        ",                        22712900
        "       ","      ",                                             22713000
812,"MORE THA","N 64 LAB","ELS DECL","ARED    ",                        22713100
        "       ","      ",                                             22713200
813,"LABEL AP","PEARS MO","RE THAN ","ONCE    ",                        22713300
        "       ","      ",                                             22713400
814,"TEST LAB","EL APPEA","RS INSID","E OF DO ",                        22713500
        "LOOP   ","      ",                                             22713600
815,"MISSING ",": AFTER ","LABEL   ","        ",                        22713700
        "       ","      ",                                             22713800
816,"MISSING ","TEST NUM","BER IN T","EST LABE",                        22713900
        "L      ","      ",                                             22714000
817,"INVALID ","TEST NUM","BER     ","        ",                        22714100
        "       ","      ",                                             22714200
818,"DUPLICAT","E TEST N","UMBER IN","  TEST LA",                       22714300
        "BEL    ","      ",                                             22714400
819,"MISSING ","= IN TES","T TALLY ","CLAUSE  ",                        22714500
        "       ","      ",                                             22714600
820,"MISSING ","INTEGER ","IN TEST ","TALLY CL",                        22714700
        "AUSE   ","      ",                                             22714800
821,"MISSING ","THEN IN ","IF CLAUS","E       ",                        22714900
        "       ","      ",                                             22715000
822,"TOGGLE D","ID NOT F","OLLOW NO","T       ",                        22715010
        "       ","      ",                                             22715020
823,"INVALID ","WORD IN ","IF CLAUS","E       ",                        22715030
        "       ","      ",                                             22715040
850,"SUBROUTI","NE DECLA","RED TWIC","E       ","        ",             22715050
        "       ",                                                      22715060
851,"MISSING ","SUBROUTI","E IDENTI","FIER    ","        ",             22715070
        "       ",                                                      22715080
860,"MISSING ","PARENTHE","SIS IN W","AIT STAT",                        22715100
    "MENT   ","      ",                                                 22715200
861,"MISSING ","OR INVAL","ID INTEG","ER IN WA",                        22715300
    "IT STATE","MENT    ";                                              22715400
  LOCK(ERRMESS[3,*]);                                                   22715500
  END FILLERRMESS;                                                      22716200
%*********************************************************************22716300
    REAL PROCEDURE ERRORSEARCH(ERROR); VALUE ERROR; INTEGER ERROR;      22716400
  BEGIN                                                                 22716500
  COMMENT ERRORSEARCH RETURNS THE FOLLOWING:                            22716505
                                                                        22716510
        [0:1]=0                                                         22716515
        [1:1]=0, DESCRIPTION OF THIS ERROR HAS                          22716520
                 NOT BEEN PRINTED                                       22716525
             =1, DESCRIPTION OF THIS ERROR HAS                          22716530
                 ALREADY BEEN PRINTED OR INVALID                        22716535
                 ERROR NUMBER (REMAINDER OF                             22716540
                 WORD TO BE IGNORED)                                    22716545
        [2:16]=0                                                        22716550
        [FF   ]= INDEX INTO ERRORMESS ROW WHERE                         22716555
                 DESCRIPTION STARTS - 1                                 22716560
        [CF   ]= ROW OF ERRORMESS WHERE DESCRIPTION                     22716565
                 IS LOCATED.                                            22716570
  ;                                                                     22716575
  LABEL FOUNDROW,XIT;                                                   22716600
  INTEGER I,J,K;                                                        22716700
  FOR I:=((ERRORMAX+19) DIV 20)-1 STEP -1 UNTIL 0 DO                    22716800
  IF ABS(ERRMESS[I,0]) LEQ ERROR THEN                                   22716900
      IF ABS(ERRMESS[I,133]) GEQ ERROR THEN                             22717000
```

```
                    GO FOUNDROW;                                              22717100
               J:=-1;                                                         22717200
               GO XIT;                                                        22717300
          FOUNDROW:                                                           22717400
               FOR K:=0 STEP 7 UNTIL 133 DO                                   22717500
               IF (J:=ERRMESS[I,K]).[CF]=ERROR THEN                           22717600
               BEGIN                                                          22717610
                    UNLOCK(ERRMESS[I,*]);                                     22717615
                    ERRMESS[I,K]:=-ABS(J);                                    22717620
                    LOCK(ERRMESS[I,*]);                                       22717625
                    GO XIT;                                                   22717630
               END;                                                           22717640
               J:=-1;                                                         22717700
          XIT:                                                                22717800
               ERRORSEARCH:=J&I[CTC]&K[CTF];                                  22717900
               END;                                                           22718000
     %*************************************************************************22718100
          PROCEDURE PRINTHERROR(ERROR); VALUE ERROR; INTEGER ERROR;           22720000
               BEGIN                                                          22730000
               COMMENT  PRINTHERROR PRINTS SYNTAX ERROR                       22730005
                        MESSAGES.  IT ALSO SCANS THE SOURCE INPUT             22730010
                        UNTIL A SEMICOLON,"ELSE" , OR "END" IS                22730015
                        ENCOUNTERED;                                          22730020
               FORMAT ERRORF(X7,"ERROR NUMBER ",A3,"=",X88,8("X")),           22740000
                      EF("ERR ",A3,"=");                                      22741000
               LIST DEL(DECMAL(ERROR));                                       22742000
               STREAM PROCEDURE REMOTERRORMESSAGE(OUTBUFF,LINENR,             22750000
                    ERROR,FIRSTSCAN,COUNT);                                   22760000
                    VALUE ERROR,FIRSTSCAN,COUNT;                              22770000
                    BEGIN                                                     22780000
                    LOCAL TDI;                                                22790000
                         DI:=OUTBUFF; DI:=DI+8;                               22800000
                         DS:=10 LIT "NEAR LINE ";                             22810000
                    SI:=LINENR; TDI:=DI; DS:=8 DEC;                           22820000
                    SI:=TDI; DI:=TDI;                                         22830000
                    7(IF SC="0" THEN SI:=SI+1);                               22840000
                    8(IF SC=" " THEN JUMP OUT ELSE DS:=CHR);                  22850000
                    DS:=14 LIT " ERROR NUMBER ";                              22860000
                    SI:=LOC ERROR; DS:=3 DEC;                                 22870000
                    DS:=3 LIT " = ";                                          22880000
                    SI:=FIRSTSCAN; DS:=COUNT CHR;                             22890000
               END;                                                           22900000
          REAL E;                                                             22901000
          LABEL EXPLAIN;                                                      22902000
     %                                                                        22910000
          IF ERRORS:=ERRORS+1=1 THEN                                          22920000
          BEGIN                                                               22920100
               FILLERRORMESS(ERRMESS);                                        22920150
               ERRTOG:=TRUE;                                                  22920200
               LASTERROR:=-0;                                                 22920300
          END;                                                                22920400
          IF CSWITCH=0 THEN                                                   22930000
          BEGIN                                                               22940000
               IF NOT BL(E:=ERRORSEARCH(ERROR)).[1:1] THEN                    22941000
                    WRITE(TWX);                                               22942000
               CLEAR(OUTBUFFER,10);                                           22950000
               REMOTERRORMESSAGE(OUTBUFFER,TEST,ERROR,FIRSTSCAN,              22960000
                    ABS(COUNT)+REAL(COUNT=0));                                22970000
               WRITE(TWX,10,OUTBUFFER[*]);                                    22980000
               IF NOT LST THEN GO EXPLAIN;                                    22981000
```

```
                END ELSE                                                        22990000
                IF NOT LST THEN                                                 23000000
                IF NOT LINERROR THEN                                            23010000
                BEGIN                                                           23020000
                     IF NOT HTOG THEN                                           23020100
                     BEGIN                                                      23020200
                          DATIME;                                               23020300
                          HTOG:=TRUE;                                           23020400
                          WRITE(LFILE[DBL]);                                    23020500
                     END;                                                       23020600
                     CLEAR(OUTBUFFER,15);                                       23030000
                     LINERROR:=TRUE;                                            23040000
                     WRITE(LFILE);                                              23050000
                     MOVE(9,INPUTBUFFER,OUTBUFFER[2]);                          23060000
                     OUTBUFFER[12]:=DECMAL(TEST);                               23070000
                     WRITE(LFILE[DBL],15,OUTBUFFER[*]);                         23080000
                END;                                                            23090000
                WRITE(OUTBUFFER[*],ERRORF,DEL);                                 23100000
                CHARACTERMOVE(ABS(COUNT)+REAL(COUNT=0),FIRSTSCAN,               23110000
                     COREADDR(OUTBUFFER[3]));                                   23120000
                IF LASTERROR NEQ 0 THEN                                         23120100
                     OUTBUFFER[11]:=DECMAL(ABS(LASTERROR));                     23120200
                WRITE(LFILE[DBL],15,OUTBUFFER[*]);                              23140000
                LASTERROR:=TEST;                                                23140100
                IF CSWITCH NEQ 0 THEN                                           23140150
                E:=ERRORSEARCH(ERROR);                                          23140200
           EXPLAIN:                                                             23140210
                IF NOT BL(E),[1:1] THEN                                         23140220
                BEGIN                                                           23140300
                     WRITE(OUTBUFFER[*],FF,DEL);                                23140400
                     MOVE(6,ERRMESS[E,[CF],E,[FF]+1],OUTBUFFER[1]);             23140500
                     IF LST OR CSWITCH NEQ 0 THEN                               23140550
                          WRITE(LFILE[DBL],15,OUTBUFFER[*]);                    23140600
                     IF CSWITCH=0 THEN                                          23140700
                          WRITE(TWX,10,OUTBUFFER[*]);                           23140800
                END;                                                            23140900
                IF ERROR NEQ 160 THEN                                           23149000
                WHILE SPECIALCHR NEQ ";" DO SCAN;                       %140123170000
                LASTSCAN:=FIRSTSCAN;                                            23171000
                END;                                                            23180000
           %************************************************************************23190000
           DEFINE PRINTERROR(PRINTERROR1)=                                      23200000
              BEGIN PRINTHERROR(PRINTERROR1); GO XIT; END#;                     23210000
           %************************************************************************23211000
                STREAM PROCEDURE OCTADES(N,A,B); VALUE N,A,B;                   23212000
                BEGIN                                                           23213000
                SI:=LOC B; SI:=SI-N; N(SKIP 3 SB);                              23214000
                DI:=B;                                                          23215000
                N(DS:=3 RESET; 3(IF SB THEN DS:=SET ELSE DS:=RESET;             23216000
                                 SKIP SB));                                     23217000
                END;                                                            23218000
           %************************************************************************23220000
                PROCEDURE DEBUGOUT(I,S,A); VALUE I,S,A; REAL I; INTEGER S,A;    23221000
                BEGIN                                                           23222000
                COMMENT  PRODUCES DEBUGGING OUTPUT -  I IS THE                  23222005
                         INSTRUCTION WHICH IS PLACED IN SEGMENT S,              23222010
                         REL ADDR A;                                            23222015
                REAL JUNK;                                                      23223000
                STREAM PROCEDURE BLNK(A);                                       23223100
                     BEGIN                                                      23223200
```

```
                LOCAL J; LABEL XIT;                                          23223250
                DI:=A; DS:=8 FILL; DI:=LOC J; SI:=A;                         23223300
                8(IF SC=" " THEN SI:=SI+1 ELSE JUMP OUT TO XIT);             23223400
                J:=SI; SI:=LOC J; DI:=J; DI:=DI+1;                           23223500
                DS:=7 FILL;                                                  23223600
            XIT: END;                                                        23223700
                CLEAR(OUTBUFFER,15);                                         23224000
                EDIT(1,I,OUTBUFFER[ 1],0,1,JUNK,JUNK,0);                %140423225000
                BLNK(OUTBUFFER[ 1]);                                    %140423225100
                OCTADES(3,S,I:=COREADDR(OUTBUFFER[ 0]));                %140423226000
                OCTADES(3,A,BL(I) OR BL(3"400000"));                         23227000
                WRITE(LFILE[DBL],15,OUTBUFFER[*]);                           23228000
            END;                                                             23229000
%************************************************************************23229500
PROCEDURE EMITLITERAL(LITERAL); VALUE LITERAL; REAL LITERAL;                 23230000
    COMMENT  PLACES LITERAL INTO CODE[A] AND INCREMENTS                      23230005
             A BY ONE;                                                       23230010
    BEGIN                                                                    23250000
    LABEL XIT;                                                               23260000
    INTEGER JUNK;                                                            23261000
    IF A GEQ SEGSIZE THEN                                                    23261100
       BEGIN                                                                 23261200
       PRINTHERROR(500);                                                     23261300
       GO EXIT;                                                              23261400
       END                                                                   23261500
    ELSE                                                                     23261600
    CODE[A]:=LITERAL;                                                        23270000
    IF DEBUGN THEN                                                           23271000
       DEBUGOUT(LITERAL,S,A);                                                23272000
    A:=A+1;                                                                  23280000
XIT: END;                                                                    23400000
%************************************************************************23400100
     BOOLEAN PROCEDURE RESWRDCHK;                                            23400200
          BEGIN                                                              23400300
          COMMENT  RETURNS TRUE IF WORD IN TESTBUFFER IS                     23400305
                   NOT A RESERVED WORD;                                      23400310
          IF WRD(COMPAREBUFF,NROFMOD) GEQ 0 THEN                             23400400
               PRINTHERROR(202)                                              23400600
          ELSE                                                               23400800
          IF WRD(RESERVED,NROFRESERVED) GEQ 0 THEN                           23400900
               PRINTHERROR(202)                                              23401100
          ELSE                                                               23401300
          IF COUNT GTR 8 THEN                                                23401400
               PRINTHERROR(203)                                              23401600
          ELSE RESWRDCHK:=TRUE;                                              23401800
          END;                                                               23401900
%************************************************************************23410000
DEFINE WHATBUFFER=WHICHBUFFER(FALSE)#;                                       23410100
%************************************************************************23410200
INTEGER PROCEDURE WHICHBUFFER(TOG); VALUE TOG; BOOLEAN TOG;                  23420000
   BEGIN                                                                     23430000
   COMMENT  WHICHBUFFER RETURNS A BUFFER NUMBER.  IF TOG IS                  23430005
            TRUE, THE NUMBER RETURNED IS THAT OF THE DEFAULT                 23430010
            BUFFER FOR READS WITH PATTERN (I.E., IF A STATEMENT              23430015
            SUCH AS "READ MTA PATTERN 800("Z")" IS ENCOUNTERED,              23430020
            IT IS NECESSARY TO ASSIGN A BUFFER FOR PERFORMING                23430025
            THE I/O.  BUFFER ONE (PATBUFF) CAN NOT BE USED, SINCE            23430030
            IT WILL BE USED TO HOLD THE COMPARISON PATTERN).                 23430035
            IF TOG IS FALSE, THE ROUTINE SCANS THE SOURCE INPUT              23430040
            AND RETURNS THE BUFFER INDEX OF THE BUFFER IDENTIFIER            23430045
```

```
            FOUND THERE;                                                                    23430050
                                                                                            23430055
      INTEGER B;                                                                            23440000
      FORMAT BF(X2,A3,"=B");                                                                23441000
      LABEL XIT,TL;                                                                         23450000
      COMMENT--THIS ROUTINE ASSUMES THAT THE VARIABLE "SIZE" CONTAINS                       23460000
               THE LENGTH OF THE SUBJECT BUFFER IN WORDS;                                   23470000
      SIZE:=MIN(SIZE,1020);                                                                 23470050
      IF TOG THEN                                                                           23470100
         IF RBUFF=EMPTY THEN                                                                23470200
            BEGIN                                                                           23470300
            IF RBUFF:=NEXTBUFF=MAXBUFFS THEN PRINTERROR(201);                               23470400
            GO TL;                                                                          23470450
            END                                                                             23470600
         ELSE                                                                               23470700
            BEGIN                                                                           23470800
            WHICHBUFFER:=RBUFF;                                                             23470900
            BUFFERS[0,RBUFF].[SF]:=MAX(SIZE,BUFFERS[0,RBUFF].[SF]);                         23470950
            GO XIT;                                                                         23471000
            END                                                                             23471100
      ELSE                                                                                  23471200
      SCAN;                                                                                 23480000
      IF COUNT LEQ 0 THEN PRINTERROR(200) ELSE                                              23490000
      IF B:=WHATWORD(TESTBUFFER,BNAMES[0],NEXTBUFF) LSS 0 THEN                              23500000
         BEGIN                                                                              23510000
         IF NEXTBUFF=MAXBUFFS THEN PRINTERROR(201) ELSE                                     23520000
         IF RESWRDCHK THEN                                                                  23521000
         MOVE(1,TESTBUFFER,BNAMES[NEXTBUFF]);                                              23530000
   TL:                                                                                      23531000
         B:=NEXTBUFF;                                                                       23540000
         IF LST THEN                                                                        23541000
            BEGIN                                                                           23542000
            OCTADES(3,NEXTBUFF,BL(COREADDR(JUNK)) OR BL(3"500000"));                        23543000
            WRITE(LFILE[DBL],BF,JUNK);                                                      23544000
            END;                                                                            23545000
         NEXTBUFF:=NEXTBUFF+1;                                                              23550000
         END;                                                                               23560000
      BUFFERS[0,B].[SF]:=MAX(SIZE,BUFFERS[0,B].[SF]);                                       23570000
      WHICHBUFFER:=B;                                                                       23580000
   XIT: END;                                                                                23590000
   %************************************************************************************23600000
        PROCEDURE STARTASEGMENT(SEGMENT,TOG);                                               23610000
            VALUE SEGMENT,TOG; INTEGER SEGMENT; BOOLEAN TOG;                                23610100
            BEGIN                                                                           23620000
            COMMENT  STARTS A NEW CODE SEGMENT.  TOG IS TRUE IF                             23620005
                     THE NEW SEGMENT IS A SUBROUTINE SEGMENT                                23620010
                     (IT IS DIALED INTO THE SIGN BIT OF THE                                 23620015
                     SEGMENT DICTIONARY ENTRY FOR THE SEGMENT);                             23620020
            LABEL XIT;                                                                      23630000
            FORMAT SEGF(X86,"START OF SEGMENT ",10("*"),I3);                                23640000
   %                                                                                        23650000
            IF S NEQ 0 THEN                                                                 23660000
            PRINTERROR(900) ELSE                                                            23670000
            IF NOT TOG THEN                                                                 23671000
            EMITLITERAL(8&SEGMENT[CTF]);                                                    23680000
            SAVEA:=A; A:=0;                                                                 23690000
            S:=SEGMENT;                                                                     23710000
            IF LST THEN                                                                     23720000
            WRITE(LFILE[DBL],SEGF,S);                                                       23730000
        XIT: END;                                                                           23740000
```

```
%*************************************************************************23750000
     PROCEDURE FINISHSEGMENT(TOG); VALUE TOG; BOOLEAN TOG;                23760000
          BEGIN                                                           23770000
                                                                          23770005
          COMMENT  FINISHES A SEGMENT.  IF TOG IS TRUE, A                 23770010
                   SUBROUTINE SEGMENT IS BEING FINISHED.                  23770015
                   OTHERWISE, A DO LOOP SEGMENT IS BEING                  23770020
                   FINISHED, AND A BRANCH BACK TO THE                     23770025
                   ROOT SEGMENT IS EMITED ;                               23770030
          LABEL XIT;                                                      23780000
          FORMAT ESEGF(X79,"SEGMENT",I3," IS",I4," LONG, ",               23790000
                       "NEXT SEGMENT 0");                                 23800000
     %                                                                    23810000
          IF S=0 THEN PRINTERROR(901) ELSE                                23820000
          IF NOT TOG THEN                                                 23821000
          EMITLITERAL(8&SAVEA[CTSCF]);                                    23830000
          SEGDICT[S]:=SEGDICT[S]&A[CTSF]&REAL(TOG)[1:47:1];               23840000
          IF LST THEN                                                     23880000
          WRITE(LFILE[DBL],ESEGF,SNA);                                    23890000
          LSEG:=MAX(LSEG,A);                                              23901000
          A:=SAVEA;                                                       23910000
          S:=0;                                                           23920000
     XIT: END;                                                            23930000
%%*************************************************************************24210000
INTEGER PROCEDURE WHATPATTERN(TYPE); VALUE TYPE; INTEGER TYPE;            24220000
   BEGIN                                                                  24230000
   COMMENT  WHATPATTERN, TOGETHER WITH PATTERNGENERATOR,                  24230005
            HANDLE PATTERN NAMES AND DESCRIPTIONS IN THE                  24230010
            COMPILER.  WHATPATTERN IS CALLED WHEN THE                     24230015
            RESERVED WORD "PATTERN" IS ENCOUNTERED.  IT                   24230020
            SCANS THE NEXT ITEM FROM THE SOURCE INPUT AND                 24230025
            TAKES ACTION AS FOLLOWS:                                      24230030
                                                                          24230035
        1)  IF THE ITEM SCANNED IS A NUMBER, AND                          24230040
            TYPE IS LSS 0, WHATPATTERN RETURNS                            24230045
            THE NUMBER WITH A NEGATIVE SIGN.  IF                          24230050
            TYPE GEQ 0, A SYNTAX ERROR MESSAGE                            24230055
            IS GENERATED.                                                 24230060
                                                                          24230065
        2)  IF THE ITEM SCANNED IS AN IDENTIFIER,                         24230070
            A CHECK IS MADE TO DETERMINE IF                               24230075
            THE IDENTIFIER HAS BEEN PREVIOUSLY                            24230080
            ASSIGNED TO A PATTERN.  IF SO, WHATPATTERN                    24230085
            RETURNS THE INTERNAL PATTERN NUMBER OF                        24230090
            THE PATTERN AND EXITS.  IF THE IDENTIFIER                     24230095
            HAS NOT BEEN SEEN BEFORE, IT IS ENTERED INTO                  24230100
            PNAMES[NEXTPATTERN] AND PATTERNGENERATOR                      24230105
            IS CALLED TO SYNTAX CHECK THE DESCRIPTION                     24230110
            OF THE PATTERN (UNLESS THE PATTERN IS A                       24230115
            TAPE LABEL PATTERN).  THE DEBLANKED PATTERN                   24230120
            DESCRIPTION IS PLACED IN JUNKBUFFER.  IF                      24230125
            SUFFICIENT SPACE REMAINS IN PDESC[*], THE                     24230130
            DEBLANKED DESCRIPTION IS MOVED THERE AND                      24230135
            PP IS UPDATED TO POINT TO THE NEXT AVAILABLE                  24230140
            WORD IN PDESC[*].  OTHERWISE, PDESC[*] IS                     24230145
            WRITTEN TO DISK AND A NEW DESCRIPTION RECORD                  24230150
            STARTED.                                                      24230155
                                                                          24230160
        3)  IF A NUMBER FOLLOWED BY A "(" IS FOUND                        24230165
            , THE PATTERN IS GIVEN THE NAME "DDD,,BBB"                    24230170
```

```
                    WHERE DDD... IS THE ALPHA REPRESENTATION                24230175
                    OF NEXTPATTERN.  ACTION IS THEN TAKEN AS                24230180
                    IN 2 ABOVE.  IN BOTH 2 AND 3, NEXTPATTERN               24230185
                    IS INCREMENTED BY ONE PRIOR TO EXITING                  24230190
                    OF THE ROUTINE;                                         24230195
DEFINE KNOWN=TYPE=1#;                                                       24240000
BOOLEAN SAVEPATTERN,NOPATTERN,LTOG;                                         24260000
LABEL XIT,WRAP,NEWSEG;                                                      24270000
LABEL LABELFIX;                                                             24270100
LABEL DUPGOOF;                                                         %140124270200
REAL T1,T2,T3;                                                         %140124270300
INTEGER CHRS,SIZE,FT;                                                  %140424271000
REAL MFID,FID;   %DO NOT DECLARE ANY VARIABLES BETWEEN THESE                24280000
FORMAT PF(X2,A3,"=P");                                                      24290000
%                                                                           24300000
SCAN;                                                                       24310000
IF KNOWN THEN                                                               24320000
   BEGIN                                                                    24330000
   IF (WHATPATTERN:=WHATWORD(TESTBUFFER,PNAMES[0],                          24340000
      NEXTPATTERN)) LSS 0 THEN                                              24350000
      BEGIN                                                                 24360000
         WHATPATTERN:=0;                                                    24370000
         PRINTERROR(100);                                                   24380000
      END;                                                                  24390000
   T1:=COUNT;T2:=FIRSTSCAN;T3:=CRD;                                    %140124390100
   SCAN;                                                               %140124390200
   IF SPECIALCHR="(" THEN GO DUPGOOF ELSE LASTSCAN:=FIRSTSCAN;         %140124390300
   END ELSE                                                                 24400000
   BEGIN                                                                    24410000
   IF COUNT=0 THEN IF SPECIALCHR NEQ "(" THEN PRINTERROR(101) ELSE          24420000
   ELSE                                                                     24421000
   IF SAVEPATTERN:=COUNT GTR 0 THEN                                         24430000
      BEGIN                                                                 24440000
      IF WHATPATTERN:=WHATWORD(TESTBUFFER,PNAMES[0],NEXTPATTERN)            24450000
         GEQ 0 THEN                                                  %140124460000
         BEGIN                                                       %140124460100
         T1:=COUNT;T2:=FIRSTSCAN;T3:=CRD;                            %140124460200
         SCAN;                                                       %140124460300
         IF SPECIALCHR="(" THEN                                      %140124460400
DUPGOOF:                                                             %140124460500
            BEGIN                                                    %140124460600
            IF CRD=T3 THEN BEGIN COUNT:=T1;FIRSTSCAN:=T2;END;        %140124460700
            PRINTERROR(303);                                         %140124460800
            END;                                                     %140124460900
         LASTSCAN:=FIRSTSCAN;                                        %140124461000
         GO XIT;                                                     %140124461100
         END;                                                        %140124461200
      IF WORD=27 AND COUNT=9 THEN                                           24470000
         BEGIN                                                              24480000
         MFID:="ONLINE "; FID:="TESTAPE";                                   24480050
         SCAN;                                                              24480100
         IF SPECIALCHR="=" THEN                                             24480200
            BEGIN                                                           24480300
            SCAN; LASTSCAN:=FIRSTSCAN;                                      24480400
            IF ET:=FILEIDENTIFIER(FIRSTSCAN,LASTSCAN,MFID)=0 THEN           24480500
               PRINTERROR(130);                                             24480600
            END                                                             24480700
         ELSE LASTSCAN:=FIRSTSCAN;                                          24480800
         IF NOT TAPEQUATED THEN                                             24481000
            MOVE(2,MFID,HEADER[28]);                                        24481100
```

```
                LTOG:=TRUE;                                                    24510000
                MOVE(1,COMPAREBUFF[27],TESTBUFFER); %RESTORE "TAPELABE"        24510100
                END ELSE                                                       24520000
          IF NOT RESWRDCHK THEN GO XIT;                                        24521000
          IF NEXTPATTERN=MAXPATTERNS THEN PRINTERROR(103) ELSE                 24530000
          MOVE(1,TESTBUFFER,PNAMES[NEXTPATTERN]);                              24540000
          WHATPATTERN:=NEXTPATTERN;                                            24550000
          IF LTOG THEN                                                         24560000
             BEGIN                                                             24570000
             CHRS:=-72; SIZE:=9;                                               24570100
             ACCUMULATOR:=COREADDR(JUNKBUFFER[9]);                             24570200
             GO WRAP;                                                          24570300
             END ELSE                                                          24570400
          SCAN;                                                                24580000
          IF COUNT GEQ 0 THEN IF SPECIALCHR NEQ "(" THEN                       24590000
             PRINTERROR(101);                                                  24591000
          END;                                                                 24600000
       ACCUMULATOR:=COREADDR(JUNKBUFFER);                                      24620000
       CLEAR(JUNKBUFFER,(60));                                                 24630000
       JUNKBUFFER[59]:=REAL(NOT FALSE);                                        24640000
       IF SPECIALCHR="(" THEN LASTSCAN:=FIRSTSCAN ELSE                         24641000
       IF SIZE:=((CHRS:=TESTBUFFER[0])+7) DIV 8 GTR 1021 THEN                  24650000
          PRINTERROR(105);                                                     24660000
          SAVING:=TRUE;                                                        24661000
          SCAN;                                                                24670000
       IF NOPATTERN:=SPECIALCHR NEQ "(" THEN                                   24680000
          IF SAVEPATTERN THEN                                                  24690000
             PRINTERROR(106) ELSE                                              24700000
          ELSE                                                                 24710000
          BEGIN                                                                24730000
          IF PATTERNGENERATOR(CHRS,-1) THEN                                    24750000
          PRINTERROR(ERROR);                                                   24760000
          IF CHRS=0 THEN SIZE:=(COUNT+7) DIV 8;                                24761000
          SAVING:=FALSE;                                                       24770000
          END;                                                                 24780000
          IF NOT NOPATTERN THEN                                                24790000
          BEGIN                                                                24800000
    WRAP:                                                                      24810000
          IF NOT SAVEPATTERN THEN                                              24820000
             BEGIN                                                             24830000
             PNAMES[NEXTPATTERN]:=                                             24840000
                IF NEXTPATTERN LSS 10 THEN                                     24850000
                   0&DECMAL(NEXTPATTERN)[1:43:5]&" "[6:42:6] ELSE              24860000
                   0&DECMAL(NEXTPATTERN)[1:37:11]&" "[12:42:6];                24870000
                WHATPATTERN:=NEXTPATTERN;                                      24880000
             END;                                                              24890000
                IF LTOG THEN                                                   24915100
                   BEGIN ET:=0; GO LABELFIX; END;                              24915200
                IF ACCUMULATOR.[CF] GTR COREADDR(JUNKBUFFER[29]) THEN          24916000
                   PRINTERROR(117) ELSE                                        24917000
                IF PP.[FF]=EMPTY THEN                                          24918000
       NEWSEG:                                                                 24918500
                BEGIN                                                          24919000
                   PATTERNS[0,NEXTPATTERN]:=CHRS&SEGNO[CTF]&                   24920000
                      SIZE[CTSF];                                              24921000
                   MOVE(30,JUNKBUFFER,PDESC);                                  24922000
                   PP:=(ACCUMULATOR.[CF]-COREADDR(JUNKBUFFER)                  24923000
                      +1)&SEGNO[CTF];                                          24924000
                   SEGNO:=SEGNO+1;                                             24924500
                END ELSE                                                       24925000
```

```
                    IF ET:=ACCUMULATOR.[CF]-COREADDR(JUNKBUFFER)+1                24926000
                        GTR 29-PP.[CF] THEN                                      24927000
                    BEGIN                                                        24928000
                        WRITE(COEFILE,30,PDESC[*]);                              24928500
                        PP:=3"7777777777";                                       24929000
                        GO NEWSEG;                                               24930000
                    END ELSE                                                     24931000
                    BEGIN                                                        24932000
                        MOVE(ET,JUNKBUFFER,PDESC[PP,[CF]]);                      24933500
        LABELFIX:                                                                24933600
                        PATTERNS[0,NEXTPATTERN]:=CHRS&PP[FTF]                    24935000
                            &PP[10:43:5]&SIZE[CTSF];                             24935100
                        PP:=PP+ET;                                               24936000
                    END;                                                         24937000
                IF LST THEN                                                      24990000
                BEGIN                                                            25000000
                OCTADES(3,NEXTPATTERN,COREADDR(ET));                             25001000
                WRITE(LFILE[DBL],PF,ET.[1:17]);                                  25002000
                END;                                                             25003000
                NEXTPATTERN:=NEXTPATTERN+1;                                      25004000
                END ELSE                                                         25030000
                IF TYPE LSS 0 THEN WHATPATTERN:=-CHRS                            25040000
                ELSE                                                             25050000
                PRINTERROR(106);                                                 25060000
                END;                                                             25070000
            XIT: SAVING:=FALSE; END;                                             25080000
            %*****************************************************************25081000
            DEFINE                                                               25082000
               EMIT(EMIT1,EMIT2,EMIT3,EMIT4)=                                    25083000
               EMITLITERAL(EMIT1&EMIT2[CTSCF]&EMIT3[CTF]&EMIT4[1:47:1])#;        25084000
            %*****************************************************************25090000
            REAL PROCEDURE WHATLABEL(KEY); VALUE KEY; INTEGER KEY;               25100000
               BEGIN                                                             25101000
               COMMENT  IT KEY=0, LABEL IDENTIFIER OCCURS IN A                   25101005
                        "GO TO" STATEMENT.  IF THIS IS THE FIRST                 25101010
                        OCCURANGE OF THE LABEL IDENTIFIER, IT IS PLACED          25101015
                        IN LNAMES[NEXTLABEL] AND A NEW LABELS[*] ENTRY           25101020
                        IS INITIALIZED FOR THE LABEL.  THE VALUE RETURNED        25101025
                        IS 3"7777777777", THIS IS EMITED INTO THE CODE           25101030
                        STREAM BY THE CALLING ROUTINE ("STATEMENT") AND          25101035
                        MARKS THE FIRST OCCURANCE OF THE LABEL.  IF THIS         25101040
                        IS NOT THE FIRST OCCURANCE OF THE LABEL, BUT ITS         25101045
                        LOCATION IS AS YET UNKNOWN, THE LOW ORDER 30 BITS        25101050
                        OF THE LABELS[*] ENTRY FOR THE LABEL IS RETURNED.        25101055
                        THE LABELS[*] ENTRY IS THEN UPDATED TO POINT TO          25101060
                        THE CURRENT SEGMENT AND REL ADDRESS.  IN THIS            25101065
                        WAY, THOSE BRANCHES TO THE LABEL WHICH OCCUR PRIOR       25101070
                        TO THE LABEL ITSELF ARE LINKED TOGETHER WITH THE         25101075
                        LABELS[*] ENTRY POINTING TO THE LAST SUCH BRANCH.        25101080
                        IF "LEVELCOUNT" IS NON-ZERO IN EITHER OF THE ABOVE CASES,25101085
                        A NOOP (0) IS EMITED.  THIS IS NECESSARY TO PROVIDE      25101090
                        SUFFICIENT SPACE FOR A JUMP OUT INSTRUCTION IF ONE       25101095
                        IS REQUIRED.  IF THE LOCATION OF THE LABEL IS KNOWN,     25101100
                        A BRANCH INSTRUCTION TO THAT LOCATION IS RETURNED BY     25101105
                        THE ROUTINE.                                             25101110
                                                                                 25101115
                        IF KEY=1, THE RESERVED WORD "LABEL" HAS JUST OCCURED     25101120
                        AT THE BEGINNING OF A STATEMENT.  IF THIS IS THE FIRST   25101125
                        OCCURANCE OF THE IDENTIFIER, A NEW LABELS[*] ENTRY       25101130
                        IS BUILT.  IF THIS IS NOT THE FIRST OCCURANCE OF THE     25101135
```

```
            IDENTIFIER, THE LABELS[*] ENTRY FOR THE LABEL IS UPDATED     25101140
            TO INDICATE THAT THE LABEL HAS BEEN FOUND;                   25101145
        INTEGER L;                                                       25102000
        LABEL XIT;                                                       25104000
        SCAN;                                                            25105000
        CASE KEY OF                                                      25106000
        BEGIN                                                            25107000
           BEGIN                                                         25107100
           IF WORD=40 THEN SCAN;    %"IO"                                25108000
           IF WORD=TST THEN                                              25109000
              IF NOT(CONF OR LIBONLY) THEN PRINTHERROR(164) ELSE         25109050
              IF LEVELCOUNT=0 THEN WHATLABEL:=12                         25109100
              ELSE PRINTHERROR(814)                                      25109200
           ELSE                                                          25109300
           BEGIN                                                         25110000
           IF COUNT LEQ 0 THEN PRINTERROR(161);                          25111000
           IF L:=WRD(LNAMES[0],NEXTLABEL) GEQ 0 THEN                     25117000
              IF NT1:=LABELS[L] LSS 0 THEN                               25118000
                 BEGIN                                                   25118100
                 IF NT2:=LEVELCOUNT-NT1.[18:9] LSS 0 THEN                25118200
                    PRINTERROR(165) ELSE                                 25118300
                 IF NT2 NEQ 0 THEN EMIT(10,NT2,0,1);                     25118400
                 WHATLABEL:=8&NT1[27:3:15]                               25119000
                 END                                                     25119100
              ELSE                                                       25120000
                 BEGIN                                                   25121000
                 IF LEVELCOUNT GTR 0 THEN EMITLITERAL(0);                25121100
                 WHATLABEL:=(NT1.[27:21])&LEVELCOUNT[CTSF];              25122000
                 LABELS[L]:=A&S[CTF]&MIN(NT1.[SF],LEVELCOUNT)[CTSF];     25123000
                 END                                                     25124000
              ELSE                                                       25125000
                 BEGIN                                                   25280000
                 IF LEVELCOUNT GTR 0 THEN EMITLITERAL(0);                25281000
                 IF NEXTLABEL=MAXLABELS THEN PRINTERROR(812) ELSE        25290000
                 WHATLABEL:=3"777777777"&LEVELCOUNT[CTSF];               25300000
                 LABELS[NEXTLABEL]:=A&S[CTF]&(LEVELCOUNT)[CTSF];         25310000
                 JUNKB:=RESWRDCHK;                                       25311000
                 MOVE(1,TESTBUFFER,LNAMES[NEXTLABEL]);                   25320000
                 NEXTLABEL:=NEXTLABEL+1;                                 25330000
                 END;                                                    25340000
           END;                                                          25341000
           END;                                                          25341100
           IF L:=WRD(LNAMES[0],NEXTLABEL) GEQ 0 THEN                     25350000
              BEGIN                                                      25360000
              IF NT1:=LABELS[L] LSS 0 THEN PRINTERROR(813) ELSE          25370000
              IF NT2:=NT1.[SF] LSS LEVELCOUNT THEN                       25380000
                 PRINTERROR(163) ELSE                                    25381000
              LABELS[L]:=-NT1&(A&S[33:42:6])[CTHF]&NT2[18:39:9];         25382000
              END                                                        25390000
           ELSE                                                          25400000
              BEGIN                                                      25410000
              IF COUNT LEQ 0 THEN PRINTERROR(161);                       25411000
              IF NEXTLABEL=MAXLABELS THEN PRINTERROR(812) ELSE           25420000
              LABELS[NEXTLABEL]:=-3"777777777"&S[3:42:6]&A[9:39:9]       25430000
                 &LEVELCOUNT[18:39:9];                                   25431000
              JUNKB:=RESWRDCHK;                                          25432000
              MOVE(1,TESTBUFFER,LNAMES[NEXTLABEL]);                      25440000
              NEXTLABEL:=NEXTLABEL+1;                                    25450000
              END;                                                       25460000
        END;                                                             25470000
```

```
XIT: END;                                                                    25480000
%*************************************************************************25530000
     PROCEDURE STATEMENT; FORWARD;                                           25540000
%*************************************************************************25550000
     PROCEDURE COMPOUNDSTATEMENT;                                            25560000
          BEGIN                                                              25570000
          LABEL SEMICOLON,XIT;                                               25580000
          SCAN; %WORD PREVIOUSLY IN TESTBUFFER WAS "BEGIN"                   25590000
          WHILE TRUE DO                                                      25600000
          BEGIN                                                              25610000
               STATEMENT;                                                    25620000
               IF WRD(RESERVED[7],1)=0 THEN GO XIT ELSE                      25630000
               IF NOT(COUNT=0 AND SPECIALCHR=";") THEN                       25640000
                    PRINTERROR(119);                                         25641000
     SEMICOLON:                                                              25650000
          SCAN;                                                              25651000
          IF SPECIALCHR=";" AND COUNT=0 THEN GO SEMICOLON;                   25652000
          END;                                                               25660000
     XIT: SCAN; END;                                                         25670000
%*************************************************************************25810000
     PROCEDURE CONDITIONALSTATEMENT;                                         25820000
          BEGIN                                                              25830000
          INTEGER A1,A2;                                                     25840000
          LABEL XIT;                                                         25850000
          %                                                                  25860000
          A1:=A; EMITLITERAL(0);                                             25870000
          SCAN;                                                              25880000
          IF WORD NEQ ESLE THEN                                              25881000
          STATEMENT;                                                         25890000
          IF WORD=ESLE THEN                                                  25900000
          BEGIN                                                              25910000
               A2:=A; EMITLITERAL(0);                                        25920000
               CODE[A1]:=8&A[CTSCF]&S[CTF];                                  25930000
               IF DEBUGN THEN DEBUGOUT(CODE[A1],S,A1);                       25931000
               A1:=A2;                                                       25940000
               SCAN;                                                         25950000
               IF WORD NEQ ESLE THEN                                         25951000
               STATEMENT;                                                    25960000
          END;                                                               25970000
          CODE[A1]:=8&A[CTSCF]&S[CTF];                                       25980000
          IF DEBUGN THEN DEBUGOUT(CODE[A1],S,A1);                            25981000
     XIT: END;                                                               25990000
%*************************************************************************26000000
     PROCEDURE DOLOOP;                                                       26010000
          BEGIN                                                              26020000
          COMMENT  DO LOOPS CAUSE THE FOLLOWING CODE TO                      26020005
                   BE EMITED:                                                26020010
                                                                             26020015
                   BRANCH TO LOOP SEGMENT (IF LEVELCOUNT=0)                  26020020
                   BEGINNING OF LOOP INSTRUCTION                             26020025
                   INSTRUCTION                                               26020030
                        .                                                    26020035
                        .                                                    26020040
                   END OF LOOP INSTRUCTION                                   26020045
                   BRANCH BACK TO SEGMENT 0 (IF LEVELCOUNT=1);               26020050
                                                                             26020055
          INTEGER A1,L;                                                      26030000
          BOOLEAN SEGTOG;                                                    26030100
          LABEL XIT;                                                         26040000
               IF LEVELCOUNT:=LEVELCOUNT+1=MAXLEVELS THEN                    26050000
```

```
                PRINTERROR(3) ELSE                                              26060000
                SCAN;                                                           26070000
                IF WRD(RESERVED,NROFRESERVED)=11 THEN                           26080000
                   IF SEGTOG:=S=0 THEN                                          26090000
                      STARTASEGMENT(NEXTSEG:=NEXTSEG+1,FALSE);                  26100000
                EMITLITERAL(3"100");                                            26100200
                A1:=A;                                                          26110000
                STATEMENT;                                                      26120000
                FOR L:=NEXTLABEL-1 STEP -1 UNTIL 0 DO                           26120100
                   IF (NT1:=LABELS[L]) GTR 0 THEN                               26120200
                      LABELS[L].[SF]:=MIN(NT1.[SF],LEVELCOUNT-1);               26120300
                IF BOOLEAN(NT2:=REAL(SPECIALCHR="*")) THEN                      26130000
                BEGIN                                                           26140000
                     IF LEVELCOUNT NEQ 1 THEN PRINTERROR(4);                    26150000
                     TESTBUFFER[0]:=0;                                          26160000
                END ELSE                                                        26170000
                IF COUNT GEQ 0 THEN                                             26180000
                BEGIN                                                           26181000
                     PRINTERROR(4);                                             26182000
                     TESTBUFFER[0]:=0;                                          26183000
                END;                                                            26184000
                BEGIN                                                           26190000
                     CODE[A1-1].[FF]:=A;                                        26200000
                     IF DEBUGN THEN DEBUGOUT(CODE[A1-1],S,A1-1);                26201000
                     IF NT1:=TESTBUFFER[0] GEQ 512 THEN                         26210000
                     PRINTERROR(5) ELSE SCAN;                                   26220000
                     IF WORD=6 THEN EMIT(3,(NT1+REAL(NT1=0)),A1,NT2) ELSE       26230000
                      PRINTERROR(6);                                            26240000
                END;                                                            26250000
                LEVELCOUNT:=LEVELCOUNT-1;                                       26260000
                IF SEGTOG THEN FINISHSEGMENT(FALSE);                            26270000
           XIT: END;                                                            26280000
      %*****************************************************************       26280100
           PROCEDURE SUBRTINEDEC;                                               26280200
                BEGIN                                                           26280300
                COMMENT  A SUBROUTINE SEGMENT LOOKS JUST LIKE A                 26280305
                         LOOP SEGMENT WITH THE EXCEPTION THAT                   26280310
                         THE BEGINNING OF LOOP INSTRUCTION HAS NEG.             26280315
                         SIGN AND THE END OF LOOP INSTRUCTION HAS A             26280320
                         REPEAT FIELD (SCF) OF ZERO.                            26280325
                ;                                                               26280330
                LABEL XIT;                                                      26280400
                INTEGER LL,L;                                                   26280500
                %                                                               26280600
                IF S+A NEQ 0 THEN PRINTERROR(822);                              26280700
                SCAN;                                                           26280800
                IF COUNT LEQ 0 THEN PRINTERROR(851);                            26280900
                IF WRD(SUBNAMES[0],NEXTSUB) GEQ 0 THEN PRINTERROR(850);         26281000
                IF RESWRDCHK THEN MOVE(1,TESTBUFFER,SUBNAMES[NEXTSUB]);         26281100
                SCAN;                                                           26281200
                IF SPECIALCHR NEQ ";" THEN PRINTERROR(119) ELSE SCAN;           26281300
                LEVELCOUNT:=1;                                                  26281350
                STARTASEGMENT(NEXTSEG:=NEXTSEG+1,TRUE);                         26281400
                SUBR[NEXTSUB]:=NEXTSEG;                                         26281410
                NEXTSUB:=NEXTSUB+1;                                             26281450
                EMIT(0,1,0,1);                                                  26281500
                LL:=NEXTLABEL;                                                  26281600
                STATEMENT;                                                      26281700
                CODE[0].[FF]:=A;                                                26281800
                IF DEBUGN THEN DEBUGOUT(CODE[0],S,0);                           26281900
```

```
            EMIT(3,0,1,0);                                                  26282000
            FOR L:=NEXTLABEL-1 STEP -1 UNTIL LL DO                          26282100
                IF LABELS[L] GTR 0 THEN                                     26282200
                    LABELS[L],[SF]:=0;                                      26282300
            LEVELCOUNT:=0;                                                  26282400
            FINISHSEGMENT(TRUE);                                            26282500
        XIT: END;                                                           26282600
%***************************************************************************26290000
        PROCEDURE IOSTATEMENT(TYPE); VALUE TYPE; INTEGER TYPE;              26300000
            BEGIN                                                           26310000
            COMMENT                                                         26320000
                TYPE=1      READ                                            26330000
                TYPE=2      WRITE                                           26340000
                TYPE=3      SPACE                                           26350000
                TYPE=4      ERASE                                           26360000
                TYPE=5      REWIND                                          26370000
                TYPE=6      BACKSPACE                                       26380000
            ;                                                               26390000
            DEFINE                                                          26400000
                AB=0#,                                                      26401000
                BKWD=18#,                                                   26410000
                ALFA=19#,                                                   26420000
                BNRY=20#,                                                   26430000
                INTO=21#,                                                   26440000
                FROM=22#,                                                   26450000
                BOT=34#,                                                    26460000
                EOT=35#,                                                    26470000
                THRU=36#,                                                   26480000
                GM=26#;                                                     26490000
            INTEGER PROCEDURE WHATUNIT;                                     26500000
                BEGIN                                                       26510000
                SCAN;                                                       26520000
                IF U:=WRD(UNITABLE[0,0],NEXTUNIT) GEQ 0 THEN                26530000
                    WHATUNIT:=U ELSE                                        26540000
                IF U:=WRD(UNITS[0,0],16) GEQ 0 THEN                         26550000
                BEGIN                                                       26560000
                    MOVE(1,UNITS[0,U],UNITABLE[0,NEXTUNIT]),                26570000
                    UNITABLE[1,NEXTUNIT]:=UNITS[1,U];                       26580000
                    WHATUNIT:=NEXTUNIT;                                     26590000
                    NEXTUNIT:=NEXTUNIT+1;                                   26600000
                END ELSE                                                    26610000
                WHATUNIT:=-1;                                               26620000
                END;                                                        26630000
            BOOLEAN PROCEDURE OUTPUTMODIFIERS(IOD,IOD1);            %140326631000
                REAL IOD,IOD1;                                      %140326631100
                BEGIN                                               %140326631200
                    OUTPUTMODIFIERS:=TRUE;                          %140326631300
                    IF W=BNRY THEN ELSE                             %140326631400
                    IF W=AB THEN IOD1:=-ABS(IOD1) ELSE              %140326631500
                    IF W=NUNO THEN IOD,[2:1]:=1 ELSE                %140326631600
                    IF W=NOE THEN IOD1,[2:1]:=1 ELSE                %140326631700
                    IF W=ON THEN IOD:=-IOD ELSE                     %140326631800
                    OUTPUTMODIFIERS:=FALSE;                         %140326631900
                END;                                                %140326632000
            REAL IOD,IOD1;                                                  26640000
            LABEL S1,S2,S2A,S3,S4,S5,S6,E,EMITIO,XIT,FINDREADMODIFIERS;     26650000
            LABEL E1,FINDWRITEMODIFIERS,FINDSPACEMODIFIERS;                 26660000
            LABEL FINDREWINDMODIFIERS,READWRAPUP;                   %140326661000
            SWITCH IOSW:=S1,S2,S3,S4,S5,S6;                                 26670000
            %                                                               26680000
```

```
        IOD:=3"500000013"&(U:=WHATUNIT)[3:3:5];                          26690000
        IF U LSS 0 THEN PRINTERROR(771);                                 26700000
        IOD1:=TYPE&3"77777777"[18:24:24];                                26710000
        SIZE:=0;                                                         26720000
        SCAN;                                                            26730000
        GO IOSW[TYPE];                                                   26740000
S1:     %READ                                                            26750000
        IOD.[24:1]:=1;                                                   26760000
        IF W:=WORD=PAT THEN                                              26770000
        BEGIN                                                            26780000
            IOD.[SF]:=SIZE:=IF P:=WHATPATTERN(-1) LSS 0 THEN             26790000
                        ((ABS(P)+7) DIV 8) ELSE                          26800000
                          PATTERNS[0,P],[SF];                            26810000
            IF P GEQ 0 THEN                                              26820000
            BEGIN                                                        26830000
                SCAN; IOD1.[FF]:=P;                                      26840000
                IF WORD=THRU THEN                                        26850000
                BEGIN                                                    26860000
                    SCAN;                                                26870000
                    IF WORD=TLLY THEN                                    26880000
                    BEGIN                                                26890000
                        IOD.[SF]:=1023; SIZE:=1020;                      26900000
                    END ELSE                                             26910000
                    IF COUNT GEQ 0 THEN PRINTERROR(780) ELSE             26920000
                    IF NT1:=TESTBUFFER[0] DIV 8 GTR SIZE THEN            26930000
                        PRINTERROR(781) ELSE                             26940000
                    IOD.[SF]:=NT1;                                       26950000
                    SCAN;                                                26960000
                END;                                                     26970000
            END ELSE                                                     26980000
            IOD1.[SF]:=ENTIER(ABS(P) MOD 8);                             26990000
            W:=IF COUNT GTR 0 THEN WORD ELSE -1;                         27000000
        END ELSE                                                         27010000
        IF W=TPMRK THEN                                                  27020000
        BEGIN                                                            27030000
            IOD.[27:2]:=3;                                               27040000
            IOD.[SF]:=SIZE:=1020;                                        27050000
            SCAN;                                                        27060000
            W:=IF COUNT GTR 0 THEN WORD ELSE -1;                         27070000
        END ELSE                                                         27080000
        IF (JUNKB:=W=BOT) OR W=EOT THEN                                  27090000
        BEGIN                                                            27100000
            IOD.[27:1]:=1; IOD.[29:1]:=1; IOD.[22:1]:=REAL(JUNKB);       27110000
            SCAN;                                                        27120000
            W:=IF COUNT GTR 0 THEN WORD ELSE -1;                         27130000
        END ELSE                                                         27140000
        IOD.[SF]:=SIZE:=1020;                                            27150000
FINDREADMODIFIERS:                                                       27160000
        IF SPECIALCHR NEQ 0 OR COUNT LSS 0 THEN                          27170000
            BEGIN                                                        27171000
READWRAPUP:                                                              27172000
            IF P:=IOD1.[FF] NEQ EMPTY AND IOD1.[SCF]=3"777" THEN         27180000
                IOD1.[SCF]:=WHICHBUFFER(TRUE);                           27190000
            IF P NEQ EMPTY OR IOD1.[SCF]=3"777" THEN                     27190050
            DBUFFSIZE:=MAX(DBUFFSIZE,IF P=EMPTY                          27190100
                THEN IOD.[SF] ELSE PATTERNS[0,P].[SF]);                  27190200
            GO EMITIO;                                                   27200000
            END                                                          27201000
        ELSE                                                             27210000
        IF W=BKWD THEN IOD.[22:1]:=1 ELSE                                27220000
```

```
        IF W=ALFA THEN                                                  27230000
        BEGIN                                                           27240000
             IOD.[21:11]:=0;                                            27250000
             IF BL(IOD.[27:1]) THEN IOD.[28:1]:=0;                      27260000
        END ELSE                                                        27270000
        IF W=INTO THEN                                                  27290000
        BEGIN                                                           27300000
             IF IOD1.[SCF] LSS 3"777" THEN                              27310000
                  PRINTERROR(751) ELSE SCAN;                            27320000
             IF WORD=BUFF THEN IOD1.[SCF]:=WHATBUFFER ELSE              27330000
             PRINTERROR(777);                                           27340000
        END ELSE                                                        27350000
        IF WORD=PAR THEN IOD.[28:1]:=1 ELSE                             27360000
        IF OUTPUTMODIFIERS(IOD,IOD1) THEN                          %140327370000
        IF W=ON THEN GO READWRAPUP ELSE                            %140327380000
        ELSE PRINTERROR(759);                                           27410000
        SCAN; W:=WORD; GO FINDREADMODIFIERS;                            27420000
S2:     %WRITE                                                          27430000
        MAKETAPE:=TRUE;                                                 27440000
        IF W:=WORD=FROM THEN                                            27450000
        BEGIN                                                           27460000
S2A:                                                                    27470000
             SCAN;                                                      27480000
             IF WORD=BUFF THEN B:=WHATBUFFER ELSE PRINTERROR(753);      27490000
             IF IOD.[FF]=EMPTY AND SIZE=0 THEN                          27500000
                  IOD.[SF]:=BUFFERS[0,B].[SF];                          27510000
             IOD1.[SCF]:=B;                                             27520000
             SCAN;                                                      27530000
        END ELSE                                                        27540000
        IF W=PAT THEN                                                   27550000
        BEGIN                                                           27560000
             IOD.[SF]:=SIZE:=IF P:=WHATPATTERN(-1) LSS 0 THEN           27570000
                  ((ABS(P)+7) DIV 8) ELSE PATTERNS[0,P].[SF];           27580000
             IF P GEQ 0 THEN                                            27590000
             BEGIN                                                      27600000
                  SCAN; IOD1.[FF]:=P;                                   27610000
                  IF WORD=THRU THEN                                     27620000
                  BEGIN                                                 27630000
                       SCAN;                                            27640000
                       IF WORD=TLLY THEN                                27650000
                       BEGIN IOD.[SF]:=1023; SIZE:=1020; END ELSE       27660000
                       IF COUNT GEQ 0 THEN PRINTERROR(780) ELSE         27670000
                       IF NT1:=TESTBUFFER[0] DIV 8 GTR SIZE THEN        27680000
                            PRINTERROR(781) ELSE                        27690000
                       IOD.[SF]:=NT1;                                   27700000
                       SCAN;                                            27710000
                  END;                                                  27720000
             END ELSE                                                   27730000
             IOD1.[SF]:=ENTIER(ABS(P) MOD 8);                           27740000
             IF W:=WORD=FROM THEN                                       27750000
                  GO S2A                                                27750100
             ELSE                                                       27750200
                  DBUFFSIZE:=MAX(DBUFFSIZE,IF P GEQ 0 THEN              27750300
                       PATTERNS[0,P].[SF] ELSE IOD.[SF]);               27750400
        END ELSE                                                        27760000
        IF W=TPMRK THEN                                                 27770000
        BEGIN                                                           27780000
             SCAN;                                                      27790000
             IOD:=IOD&3"40"[CTF];                                       27800000
        END ELSE IOD.[SF]:=1020;                                        27810000
```

```
FINDWRITEMODIFIERS:                                                    27811000
     IF SPECIALCHR NEQ 0 OR COUNT LSS 0 THEN GO EMITIO ELSE            27812000
     IF W:=WORD =ALFA THEN                                %140327830000
     BEGIN                                                             27840000
          SCAN; IOD.[21:1]:=0;                                         27850000
          IF WORD=GM THEN                                              27860000
          BEGIN                                                        27870000
               ICD.[23:1]:=0;                                          27880000
               SCAN;                                                   27890000
          END;                                                         27900000
     END ELSE                                                          27910000
     IF OUTPUTMODIFIERS(IOD,IOD1) THEN                    %140327911000
     IF W=ON THEN GO EMITIO ELSE SCAN                     %140327912000
     ELSE PRINTERROR(773);                                %140327913000
     GO FINDWRITEMODIFIERS;                               %140327920000
S3:                                                                    27930000
     IF W:=WORD=PAT THEN                                               27930200
          BEGIN                                                        27930300
          SCAN;                                                        27930400
          IF COUNT GEQ 0 THEN PRINTERROR(772) ELSE                     27930500
          IF (SIZE:=(TESTBUFFER[0]+7)DIV 8)GEQ 0 AND SIZE LSS 1021     27930600
               THEN IOD1.[SF]:=SIZE                                    27930700
          ELSE                                                         27930800
               PRINTERROR(772);                                        27930900
          SCAN;                                                        27931000
          END;                                                         27931100
     IOD.[24:1]:=1;                                                    27940000
FINDSPACEMODIFIERS:                                                    27940100
     IF SPECIALCHR NEQ 0 OR COUNT LSS 0 THEN GO EMITIO ELSE            27950000
     IF (JUNKB:=(W:=WORD)=BUT) OR W=EOT THEN                           27960000
     BEGIN                                                             27970000
          IOD.[27:1]:=1; IOD.[29:1]:=1;                                27980000
          IOD.[22:1]:=REAL(JUNKB);                                     27990000
     END ELSE                                                          28000000
     IF W=PAR THEN IOD.[28:1]:=1 ELSE                                  28010000
$SET OMIT = OMIT OR FASTDRIVE                                          28019999
     IF W=BKWD THEN IOD.[22:1]:=1 ELSE                                 28020000
$POP OMIT                                                              28020100
$SET OMIT = OMIT OR NOT FASTDRIVE                                      28020150
     IF W = BKWD THEN                                                  28020200
        BEGIN                                                          28020300
        IF BL(IOD.[27:1]) THEN IOD.[28:1]:=1;                          28020400
        IOD.[22:1]:=1;                                                 28020500
        END                                                            28020600
     ELSE                                                              28020700
$POP OMIT                                                              28020800
     IF W=ALFA THEN IOD.[21:1]:=0 ELSE                                 28030000
$SET OMIT = OMIT OR FASTDRIVE                                          28039999
     IF W=TPMRK THEN IOD.[27:1]:=1 ELSE                    %140328040000
$POP OMIT                                                              28040100
$SET OMIT = OMIT OR NOT FASTDRIVE                                      28040200
     IF W = TPMRK THEN                                                 28040300
        BEGIN                                                          28040400
        IF BL(IOD.[22:1]) THEN IOD.[28:1]:=1;                          28040500
        IOD.[27:1]:=1;                                                 28040600
        END                                                            28040700
     ELSE                                                              28040800
$POP OMIT                                                              28040900
     IF OUTPUTMODIFIERS(IOD,IOD1) THEN                     %140328050000
     IF W=ON THEN GO EMITIO ELSE                           %140328060000
```

```
          ELSE PRINTERROR(772);                                          %140328070000
          SCAN;                                                               28080000
          GO FINDSPACEMODIFIERS;                                              28090000
     S4:  %ERASE                                                              28100000
          IOD.[18:1]:=1;                                                      28110000
          GO S2;                                                              28120000
     S5:  %REWIND                                                             28130000
          IOD:=IOD & 3"42"[18:42:6];                                     %140328140000
          IF W:=WORD=BOT THEN                                            %140328150000
          BEGIN                                                          %140328151000
               IOD:=IOD & 5[27:45:3];                                    %140328152000
               SCAN;                                                     %140328153000
               W:=IF COUNT GTR 0 THEN WORD ELSE "1;                      %140328154000
          END;                                                           %140328155000
     FINDREWINDMODIFIERS:                                                %140328160000
          IF SPECIALCHR NEQ 0 OR COUNT LSS 0 THEN GO EMITIO ELSE         %140328170000
          IF OUTPUTMODIFIERS(IOD,IOD1) THEN                              %140328180000
          IF W=ON THEN GO EMITIO ELSE                                    %140328190000
          ELSE PRINTERROR(772);                                          %140328191000
          SCAN; W:=WORD; GO FINDREWINDMODIFIERS;                         %140328200000
     S6:  %BACKSPACE;                                                         28210000
          IOD.[22:1]:=1;                                                      28220000
          GO S3;                                                              28230000
     EMITIO:                                                                  28260000
          EMITLITERAL(IOD);                                                   28270000
          EMITLITERAL(IOD1);                                                  28280000
          IF IOD LSS C THEN                                                   28290000
     E1:                                                                      28300000
               BEGIN                                                          28310000
                    SCAN;                                                     28320000
                    IF WORD=ERR THEN CONDITIONALSTATEMENT ELSE                28330000
                    PRINTERROR(810);                                          28340000
               END;                                                           28350000
          XIT: END;                                                           28360000
     %*************************************************************************28360100
          PROCEDURE BOOLEANEXPRESSION;                                        28360200
               BEGIN                                                          28360300
               COMMENT  IF "NOT" OCCURS IN A BOOLEAN EXPRESSION               28360305
                        AN EXTRA BRANCH FORWARD 2 INSTRUCTIONS IS             28360310
                        EMITED AFTER THE TEST INSTRUCTION.  THIS              28360315
                        RESULTS IN A NEGATION OF THE RESULT OF THE            28360320
                        TEST;                                                 28360325
               LABEL XIT;                                                     28360400
               BOOLEAN NOTCG;                                                 28360450
     %                                                                        28360500
               SCAN;                                                          28360600
               IF NOTOG:=W:=WORD=28 THEN                                      28360610
                    BEGIN SCAN; W:=WORD; END;                                 28360620
               IF W=TGLE THEN EMIT(13,2,0,0) ELSE                             28360700
               IF W=MOD3 THEN EMIT(13,4,1,0) ELSE                             28360800
               IF W=TLLY THEN                                                 28361600
               BEGIN                                                          28361700
                    SCAN;                                                     28361800
                    IF SPECIALCHR="=" THEN NT1:=0 ELSE                        28361900
                    IF SPECIALCHR=3"36" OR W:=WORD=41 THEN NT1:=1 ELSE        28362000
                    IF SPECIALCHR=3"16" OR W=42 THEN NT1:=2 ELSE              28362100
                    IF SPECIALCHR=3"57" OR W=43 THEN NT1:=3 ELSE              28362200
                    IF SPECIALCHR=3"17" OR W=44 THEN NT1:=4 ELSE              28362300
                    IF SPECIALCHR=3"74" OR W=45 THEN NT1:=5 ELSE              28362400
                         PRINTERROR(819);                                     28362500
```

```
        SCAN;                                                          28362600
        IF COUNT GTR 0 THEN PRINTERROR(820) ELSE                       28362700
        IF (JUNKB:=SPECIALCHR="-") OR SPECIALCHR="+"                   28362800
            THEN SCAN;                                                 28362900
        IF COUNT GEQ 0 THEN PRINTERROR(820);                           28363000
        EMIT(13,3,NT1,0);                                              28363100
        EMITLITERAL(TESTBUFFER[0]&REAL(JUNKB)[1:47:1]);                28363200
    END ELSE                                                           28363300
    BEGIN                                                              28363400
        IF W=24 THEN NT1:=5 ELSE                                       28363500
        IF W=34 THEN NT1:=6 ELSE                                       28363600
        IF W=35 THEN NT1:=7 ELSE                                       28363700
        IF W GEQ 46 AND W LEQ 50 THEN NT1:=W-38 ELSE          %140628363800
        PRINTERROR(823);                                      %140628363900
        SCAN;                                                 %140628364000
        IF WORD = ON THEN                                              28364010
        BEGIN                                                 %140628364020
            SCAN;                                             %140628364030
            IF WORD NEQ BUFF THEN LASTSCAN:=FIRSTSCAN;        %140628364040
            NT2:=WHATBUFFER;                                  %140628364050
        END ELSE                                              %140628364060
        BEGIN                                                 %140628364070
            LASTSCAN:=FIRSTSCAN;                              %140628364080
            NT2:=0;                                           %140628364090
        END;                                                  %140628364100
        EMIT(13,NT1,NT2,0);                                   %140628364200
    END;                                                               28364300
    SCAN;                                                              28364400
    IF WORD NEQ THN THEN PRINTERROR(821);                              28364500
    IF NOTOG THEN EMIT(8,(A+2),S,0);                                   28364510
XIT: END;                                                              28364600
%*******************************************************************************28370000
    PROCEDURE DISPLAYSTATEMENT(TYPE); VALUE TYPE; INTEGER TYPE;        %140628380000
        BEGIN                                                          %140628381000
        COMMENT                                                        %140628382000
            TYPE=0      PRINT                                          %140628383000
            TYPE=1      DISPLAY                                        %140628384000
        ;                                                              %140628385000
        LABEL                                                          %140628386000
            GETPAT,UVAR,BVAR,                                          %140628387000
            FINDISPLAYMODIFIERS,EMITDISPLAY,                           %140628388000
            XIT;                                                       %140628389000
        SIZE:=0;                                                       %140628390000
        NT2:=15;                                                       %140628391000
        SCAN;                                                          %140628392000
        IF SPECIALCHR="(" THEN                                         %140628393000
        BEGIN                                                          %140628394000
            LASTSCAN:=FIRSTSCAN;                                       %140628395000
            GO GETPAT;                                                 %140628396000
        END;                                                           %140628397000
        IF W:=WORD=BUFF THEN                                           %140628398000
        BEGIN                                                          %140628399000
            NT1:=1;                                                    %140628400000
            NT2:=NT2&WHATBUFFER[CTF];                                  %140628401000
            SCAN;                                                      %140628402000
        END ELSE                                                       %140628403000
        IF W=PAT THEN                                                  %140628404000
        BEGIN                                                          %140628405000
GETPAT:     NT1:=2;                                                    %140628406000
            NT2.[FF]:=P:=WHATPATTERN(3);                               %140628407000
```

```
            DBUFFSIZE:=MAX(DBUFFSIZE,PATTERNS[0,P],[SF]);          %140628408000
            SCAN;                                                  %140628409000
        END ELSE                                                   %140628410000
        IF W GEQ 52 AND W LEQ 54 THEN                              %140628411000
        BEGIN                                                      %140628412000
            NT3:=W-52;                                             %140628413000
BVAR:       NT1:=4;                                                %140628414000
            NT2:=NT2&NT3[36:45:3];                                 %140628415000
            SCAN;                                                  %140628416000
            IF WORD=39 THEN % FOR                                  %140628417000
            BEGIN                                                  %140628418000
                SCAN;                                              %140628419000
                IF WORD NEQ BUFF THEN LASTSCAN:=FIRSTSCAN;         %140628420000
                NT2:=NT2&WHATBUFFER[24:39:9];                      %140628421000
                SCAN;                                              %140628422000
            END;                                                   %140628423000
        END ELSE                                                   %140628424000
        IF W=TLLY THEN                                             %140628425000
        BEGIN                                                      %140628426000
            NT3:=0;                                                %140628427000
UVAR:       NT1:=3;                                                %140628428000
            NT2:=NT2&NT3[18:42:6];                                 %140628429000
            SCAN;                                                  %140628430000
        END ELSE                                                   %140628431000
        NT1:=0;                                                    %140628432000
        NT3:=0;                                                    %140628433000
FINDISPLAYMODIFIERS:                                               %140628434000
        IF SPECIALCHR NEQ 0 OR COUNT LSS 0 THEN GO EMITDISPLAY;    %140628435000
        IF W:=WORD=DUBLE THEN                                      %140628436000
        BEGIN                                                      %140628437000
            SCAN; IF WORD=SPCE THEN SCAN;                          %140628438000
            NT3:=NT3+2;                                            %140628439000
            GO FINDISPLAYMODIFIERS;                                %140628440000
        END ELSE                                                   %140628441000
        IF W=PGE THEN NT3:=NT3+4 ELSE                              %140628442000
        IF W=NONO THEN TYPE:=0 ELSE                                %140628443000
        IF W=36 OR W=22 THEN                                       %140628444000
        BEGIN                                                      %140628445000
            NT2.[1:2]:=2*REAL(W=36)+REAL(W=22);                    %140628446000
            SCAN;                                                  %140628447000
            IF COUNT LSS 0 THEN                                    %140628448000
            IF SIZE:=TESTBUFFER[0] GTR 1020 THEN                   %140628449000
                PRINTERROR(306)                                    %140628450000
            ELSE NT4:=0                                            %140628451000
            ELSE                                                   %140628452000
            BEGIN                                                  %140628453000
                SIZE:=0;                                           %140628454000
                IF W:=WORD=TLLY THEN NT4:=1 ELSE                   %140628455000
                IF W=52 THEN NT4:=2 ELSE                           %140628456000
                PRINTERROR(306);                                   %140628457000
            END;                                                   %140628458000
            NT2:=NT2&NT4[6:46:2];                                  %140628459000
            IF NT1=0 THEN                                          %140628460000
            BEGIN                                                  %140628461000
                NT2.[24:9]:=NT1:=1;                                %140628462000
            END;                                                   %140628463000
        END ELSE                                                   %140628464000
        PRINTERROR(401);                                           %140628465000
        SCAN;                                                      %140628466000
        GO FINDISPLAYMODIFIERS;                                    %140628467000
```

```
        EMITDISPLAY:                                                    %140628468000
             IF NT3 GTR 4 THEN PRINTERROR(402) ELSE                     %140628469000
             EMITLITERAL(NT2&NT1[39:45:3]&(TYPE+NT3)[33:45:3]&SIZE[CTSF]); 28470000
        XIT:                                                            %140628471000
             END;                                                       %140628472000
%***************************************************************************28900000
        PROCEDURE STATEMENT;                                            %140628910000
             BEGIN                                                      %140628920000
        LABEL                                                           %140628930000
             S1,S2,S3,S4,S5,S6,S7,S9,S10,S12,S13,S14,S15,S16,S17,S18,   %140628940000
             START,                                                     %140628950000
             E,G,BGN,IO,                                                %140628960000
             XIT;                                                       %140628970000
             SWITCH SW:=S1,S2,S3,S4,S5,S6,S7,XIT,S9,G,S10,BGN,          %140628980000
                    IO,IO,IO,IO,IO,IO,S12,S13,S14,S15,S16,S17,S18       %140628990000
                  ;                                                     %140629000000
        START:                                                          %140629010000
             JUNKB:=FALSE;                                              %140629020000
             IF COUNT LEQ 0 THEN                                        %140629030000
             BEGIN                                                      %140629040000
                  IF SPECIALCHR=";" THEN GO XIT;                        %140629050000
                  JUNKB:=COUNT LSS 0;                                   %140629060000
                  PRINTHERROR(2);                                       %140629070000
             END ELSE                                                   %140629080000
             IF W:=WRD(RESERVED,NROFRESERVED) GEQ 0 THEN                %140629090000
             GO SW[W+1] ELSE                                            %140629100000
             BEGIN                                                      %140629110000
                  JUNKB:=SPECIALCHR=";";    %ELSE                     %150129120000
                  PRINTHERROR(8);                                       %150129130000
                  FIRSTSCAN:=LASTSCAN;                                  %150129140000
             END;                                                       %140629150000
             IF JUNKB THEN GO XIT ELSE SCAN;                            %140629160000
             GO START;                                                  %140629170000
        S1:  %INPUT                                                     %140629180000
             SCAN;                                                      %140629190000
             IF WORD=TLLY THEN EMITLITERAL(1) ELSE                      %140629200000
             PRINTERROR(305);                                           %140629210000
             SCAN;                                                      %140629220000
             GO XIT;                                                    %140629230000
        S2:  %DISPLAY                                                   %140629240000
             NT1:=1;                                                    %140629250000
             IF FALSE THEN                                              %140629260000
        S14: %PRINT                                                     %140629270000
             NT1:=0;                                                    %140629280000
             DISPLAYSTATEMENT(NT1);                                     %140629290000
             GO XIT;                                                    %140629300000
        S3: %DO                                                             29310000
             DOLOOP;                                                        29320000
             SCAN;                                                          29330000
             GO XIT;                                                        29340000
        S4: %FILL                                                           29350000
             SCAN;                                                          29360000
             NT1:=NT2:=0;                                                   29370000
             IF W:=WORD=TLLY THEN                                           29380000
             BEGIN                                                          29390000
                  SCAN;                                                     29400000
                  IF WORD=WTH THEN SCAN ELSE PRINTERROR(501);               29410000
                  IF WORD=TLLY THEN                                         29420000
                       BEGIN SCAN; NT1:=1; END;                             29430000
                  IF SPECIALCHR="+" THEN SCAN ELSE                          29440000
```

```
            IF SPECIALCHR="-" THEN                                          29450000
                BEGIN NT2:=1; SCAN; END;                                    29460000
            IF COUNT GEQ 0 THEN PRINTERROR(503) ELSE                        29470000
            EMIT(13,0,0,NT1);                                               29480000
            EMITLITERAL(TESTBUFFER[0]&NT2[1:47:1]);                         29490000
            SCAN; GO XIT;                                                   29500000
        END ELSE                                                            29510000
        IF W=TGLE THEN                                                      29520000
        BEGIN                                                               29530000
            SCAN;                                                           29540000
            IF WORD=WTH THEN SCAN ELSE PRINTERROR(501);                     29550000
            IF WORD=ESLAF THEN ELSE                                         29560000
            IF WORD=EURT THEN NT1:=1 ELSE                                   29570000
            PRINTERROR(504);                                                29580000
            EMIT(13,1,NT1,0);                                               29590000
            SCAN; GO XIT;                                                   29600000
        END ELSE                                                            29610000
        IF WORD=BUFF THEN B:=WHATBUFFER ELSE PRINTERROR(500);               29620000
        SCAN;                                                               29630000
        IF (W:=WORD=WTH OR JUNKB:=W=USING) THEN SCAN ELSE                   29640000
        PRINTERROR(501);                                                    29650000
        IF WORD=PAT THEN                                                    29660000
        BUFFERS[0,B].[SF]:=MAX(BUFFERS[0,B].[SF],                           29670000
            PATTERNS[0,P:=WHATPATTERN(REAL(JUNKB))].[SF]) ELSE              29680000
        PRINTERROR(502);                                                    29690000
        EMIT(4,B,P,0);                                                      29700000
        SCAN;                                                               29710000
        GO XIT;                                                             29720000
    S5: %ROTATE                                                             29730000
        SCAN;                                                               29740000
        IF WORD=BUFF THEN B:=WHATBUFFER ELSE                                29750000
        PRINTERROR(601);                                                    29760000
        SCAN;                                                               29770000
        IF SPECIALCHR="+" OR JUNKB:=SPECIALCHR="-" THEN                     29780000
        BEGIN                                                               29790000
            SCAN;                                                           29800000
            IF COUNT LSS 0 THEN                                             29810000
                IF NT1:=TESTBUFFER[0] LSS 8x(BUFFERS[0,B].[SF]) THEN        29820000
                EMIT(5,B,NT1,REAL(JUNKB))                                   29830000
                ELSE PRINTERROR(602)                                        29840000
            ELSE PRINTERROR(603);                                           29850000
        END ELSE                                                            29860000
        PRINTERROR(604);                                                    29870000
        BUFFERS[0,B]:=-ABS(BUFFERS[0,B]);                                   29871000
        SCAN;                                                               29880000
        GO XIT;                                                             29890000
    S6: %SHIFT                                                              29900000
        SCAN;                                                               29910000
        IF WORD=BUFF THEN B:=WHATBUFFER ELSE                                29920000
        PRINTERROR(701);                                                    29930000
        SCAN;                                                               29940000
        IF (JUNKB:=SPECIALCHR="+") OR SPECIALCHR="-" THEN                   29950000
        BEGIN                                                               29960000
            SCAN;                                                           29970000
            IF COUNT LSS 0 THEN                                             29980000
            BEGIN                                                           29990000
                IF NT1:=TESTBUFFER[0] GTR NT2:=                             30000000
                        8x(BUFFERS[0,B].[SF]) THEN                          30010000
                IF NT2:=NT1+(NT2 DIV 8) LEQ 1021 THEN                       30020000
                BUFFERS[0,B].[SF]:=NT2 ELSE                                 30030000
```

```
                PRINTERROR(702);                                        30040000
                BUFFERS[0,B]:=-ABS(BUFFERS[0,B]);                       30041000
                EMIT(6,B,NT1,REAL(JUNKB));                              30050000
            END ELSE PRINTERROR(703);                                   30060000
        END ELSE                                                        30070000
        PRINTERROR(704);                                                30080000
        SCAN;                                                           30090000
        GO XIT;                                                         30100000
    S7: %COMPARE                                                        30110000
        SCAN;                                                           30120000
        IF W:=WORD=PAT THEN                                             30130000
            DBUFFSIZE:=MAX(DBUFFSIZE,PATTERNSLO,                        30130100
            (P:=WHATPATTERN(1)+MAXBUFFS)-MAXBUFFS],[SF])                30130200
        ELSE                                                            30130300
        IF W=BUFF THEN P:=WHATBUFFER ELSE                               30140000
        PRINTERROR(801);                                                30150000
        SCAN;                                                           30160000
        IF WORD=WTH THEN SCAN ELSE PRINTERROR(800);                     30170000
        IF WORD=BUFF THEN B:=WHATBUFFER ELSE PRINTERROR(801);           30180000
        SCAN;                                                           30190000
        IF W:=WORD=NONO THEN                                        %140330190100
            BEGIN                                                       30190200
            NT1:=7&1[2:47:1];                                           30190300
            SCAN;                                                       30190400
            END ELSE                                                %140330190500
        IF W=NOE THEN                                               %140330190600
            BEGIN                                                   %140330190700
            NT1:=7&1[3:47:1];                                       %140330190800
            SCAN;                                                   %140330190900
            END ELSE                                                %140330191000
        NT1:=7;                                                     %140330192000
        EMITLITERAL(NT1&B[CTSCF]&P[CTF]&REAL(JUNKB:=WORD=ON)[1:47:1]);30200000
        IF JUNKB THEN GO E ELSE                                         30210000
        GO XIT;                                                         30220000
    S9: %LABEL                                                          30230000
        NT1:=WHATLABEL(1);                                              30250000
        SCAN;                                                           30260000
        IF SPECIALCHR NEQ ":" THEN PRINTERROR(815);                     30270000
        SCAN;                                                           30280000
        GO START;                                                       30290000
    E:                                                                  30300000
        SCAN;                                                           30310000
        IF WORD=ERR THEN CONDITIONALSTATEMENT ELSE                      30320000
        PRINTHERROR(810);                                               30330000
        GO XIT;                                                         30340000
    G:                                                                  30350000
        EMITLITERAL(WHATLABEL(0));                                      30360000
        SCAN;                                                           30370000
        GO XIT;                                                         30360000
    S10:                                                                30390000
        IF LEVELCOUNT=0 THEN EMITLITERAL(63) ELSE                       30400000
        EMITLITERAL(10);                                                30410000
        SCAN;                                                           30420000
        GO XIT;                                                         30430000
    BGN: %BEGIN                                                         30440000
        COMPOUNDSTATEMENT;                                              30450000
        GO XIT;                                                         30460000
    IO:                                                                 30470000
        IOSTATEMENT(W-11);                                              30480000
        GO XIT;                                                         30490000
```

```
S12: %TEST                                                                    30500000
     IF NOT (CONF OR LIBONLY) THEN                                            30501000
          BEGIN                                                               30501100
          PRINTHERROR(164);                                                   30501200
          GO START;                                                           30501400
          END;                                                                30501500
     IF LEVELCOUNT NEQ 0 THEN                                                 30510000
     PRINTERROR(814) ELSE SCAN;                                               30520000
     IF COUNT GEQ 0 THEN PRINTERROR(816) ELSE                                 30530000
     IF NT1:=TESTBUFFER[0] GTR 63 THEN                                        30540000
        PRINTERROR(817) ELSE                                                  30550000
     IF BL((TESTARRAY[NT1]).[1:1]) THEN                                       30560000
        PRINTERROR(818) ELSE                                                  30570000
     TESTARRAY[NT1]:=-A;                                                      30580000
     IF THISTEST GEQ 0 THEN                                                   30590000
     TESTARRAY[THISTEST].[FF]:=REAL(MAKETAPE);                                30600000
     MAKETAPE:=FALSE;                                                         30610000
     NUMBEROFTESTS:=MAX(NUMBEROFTESTS,THISTEST:=NT1);                         30620000
     SCAN; IF SPECIALCHR NEQ ":" THEN PRINTERROR(815) ELSE                    30630000
     SCAN; GO START;                                                          30640000
S13: %IF                                                                      30650000
     JUNKB:=FALSE;                                                            30651000
     BOOLEANEXPRESSION;                                                       30660000
     CONDITIONALSTATEMENT;                                                    30790000
     GO XIT;                                                                  30800000
S15: %"SUBROUTINE"                                                            30801000
     SUBRTINEDEC;                                                             30802000
     IF HEADER[21] GTR 0 THEN   %IF NO STACK CARD...                          30802400
     HEADER[21]:=HEADER[21]+MAXLEVELS;                                        30802500
     GO XIT;                                                                  30803000
S16: %"CALL"                                                                  30804000
     SCAN;                                                                    30805000
     IF COUNT LEQ 0 THEN PRINTERROR(851);                                     30806000
     IF W:=WRD(SUBNAMES[0],NEXTSUB) GEQ 0 THEN                                30807000
          EMITLITERAL(8&SEGDICT[W][CTF])                                      30808000
     ELSE                                                                     30809000
     PRINTERROR(162);                                                         30810000
     SCAN;                                                                    30811000
     GO XIT;                                                                  30812000
S17: %"WAIT"                                                                  30812100
     SCAN;                                                                    30812200
     IF SPECIALCHR NEQ "(" THEN PRINTERROR(860);                              30812300
     SCAN;                                                                    30812400
     IF COUNT GEQ 0 THEN PRINTERROR(861);                                     30812500
     IF SIZE:=TESTBUFFER[0] GTR 511 THEN PRINTERROR(861);                     30812600
     SCAN;                                                                    30812700
     IF SPECIALCHR NEQ ")" THEN PRINTERROR(860);                              30812800
     EMIT(14,SIZE,0,0);                                                       30812900
     SCAN; GO XIT;                                                            30813000
S18: %"COMMENT"                                                               30813100
     WHILE NOT (SPECIALCHR=";" AND COUNT=0) DO SCAN;                          30813200
     SCAN;                                                                    30813300
     GO START;                                                                30813350
XIT: END OF STATEMENT;                                                        30813400
%*************************************************************************** 30820000
     PROCEDURE INITIALIZE;                                                    30830000
          BEGIN                                                               30840000
          LABEL XIT;                                                          30850000
          STREAM PROCEDURE BDCMSG(B,M,F,O); VALUE M,F,O;                      30850100
               BEGIN                                                          30850200
```

```
        DI:=8; SI:=LOC M; SI:=SI+1;                                    30850300
        DS:=2 LIT " ";                                                 30850350
        7(IF SC=" " THEN JUMP OUT ELSE DS:=CHR);                       30850400
        DS:=LIT "/";                                                   30850500
        SI:=LOC F; SI:=SI+1;                                           30850550
        7(IF SC=" " THEN JUMP OUT ELSE DS:=CHR);                       30850600
        DS:=22 LIT "(SIMPL) COMPILING FOR ";                           30850700
        SI:=LOC 0;                                                     30850800
        8(IF SC="0" THEN SI:=SI+1 ELSE DS:=CHR);                       30850900
        DS:=LIT "←";                                                   30850950
        END;                                                           30851000
    COMPILING:=TRUE;                                                   30851100
    TIME1:=TIME(1);                                                    30860000
    BUCMSG(OUTBUFFER,PMFID,PFID,IF CONF THEN "CONF" ELSE               30870000
        IF LIBONLY THEN "SYNTAX" ELSE IF SAVETOG THEN                  30870100
        "LIBRARY" ELSE "GO");                                          30870200
    IF CSWITCH=0 THEN WRITE(TWX[DBL]);                                 30870250
    WRITE(CFILE,9,OUTBUFFER[*]);                                       30870300
    NEXTSEG:=LEVELCOUNT:=0;                                            30880000
    INPUTBUFFER[10]:=3"737737373773";                                  30900000
    ROTATE(COREADDR(INPUTBUFFER[10]),JUNK,7,1);                        30910000
    MOVE(1,INPUTBUFFER[10],INPUTBUFFER[9]);                            30930000
    DOLLRE:=FALSE;                                                     30940000
    FIRSTSCAN:=LASTSCAN:=COREADDR(INPUTBUFFER[9]);                     30950000
    FILL RESERVED[*] WITH                                              31030000
        "INPUT   ",                                                    31040000
        "DISPLAY ",                                                    31050000
        "DO      ",                                                    31060000
        "FILL    ",                                                    31070000
        "ROTATE  ",                                                    31080000
        "SHIFT   ",                                                    31090000
        "COMPARE ",                                                    31100000
        "END     ",                                                    31110000
        "LABEL   ",                                                    31120000
        "GO      ",                                                    31130000
        "STOP    ",                                                    31140000
        "BEGIN   ",                                                    31150000
        "READ    ",                                                    31160000
        "WRITE   ",                                                    31170000
        "SPACE   ",                                                    31180000
        "ERASE   ",                                                    31190000
        "REWIND  ",                                                    31200000
        "BACKSPAC",                                                    31210000
        "TEST    ",                                                    31220000
        "IF      ",                                                    31230000
        "PRINT   ",                                                    31231000
        "SUBROUTI",                                                    31231100
        "CALL    ",                                                    31231200
        "WAIT    ",                                                    31231205
        "COMMENT ";                                                    31231210
    FILLMODIFIERS(COMPAREBUFF);                                        31240000
    FILL BNAMES[*] WITH                                %140131240100   31240100
        "OCODE   ","1       ";                        %140131240200   31240200
    THISTEST:=-1;                                                      31440000
    WRITE(COEFILE,30,OUTBUFFER[*]);                                    31450000
    SEGNO:=1;                                                          31470000
    NEXTSUB:=NEXTLABEL:=S:=A:=NEXTUNIT:=NEXTPATTERN:=0;                31480000
    BUFFERS[0,0]:=3"10007777700000";                                   31490000
    BUFFERS[0,1]:=3"17747777700000";                                   31500000
    NEXTBUFF:=2;                                                       31510000
```

```
        BUFFERS[0,2]:=3"7777700000";                                        31520000
        MOVE(MAXBUFFS-3,BUFFERS[0,2],BUFFERS[0,3]);                         31530000
        LABELS[0]:=3"77777777777777";                                       31540000
        PP:=3"7777777777";                                                  31541000
        RBUFF:=EMPTY;                                                       31542000
        NUMBEROFTESTS:=DBUFFSIZE:=0;                                        31543000
        MOVE(MAXLABELS-1,LABELS[0],LABELS[1]);                              31550000
    XIT: END OF INITIALIZE;                                                 31560000
%***************************************************************************31570000
    PROCEDURE WRAPUP;                                                       31580000
        BEGIN                                                               31590000
        LABEL XIT;                                                          31600000
        INTEGER LL,IL;                                                      31600050
        STREAM PROCEDURE EOCMSG(B,M,F,E); VALUE M,F,E;                      31600100
            BEGIN                                                           31600200
            LABEL L,XIT;                                                    31600300
            LOCAL X;                                                        31600400
            DI:=B;                                                          31600500
            SI:=LOC M; SI:=SI+1;                                            31600600
            DS:=2 LIT " ";                                                  31600650
            7(IF SC=" " THEN JUMP OUT ELSE DS:=CHR);                        31600700
            DS:=LIT "/"; SI:=LOC F; SI:=SI+1;                               31600800
            7(IF SC=" " THEN JUMP OUT ELSE DS:=CHR);                        31600900
            DS:=8 LIT "(SIMPL)  ";                                          31601000
            SI:=LOC E; TALLY:=8;                                            31601100
            8(IF SC="0" THEN BEGIN TALLY:=TALLY+63; SI:=SI+1; END           31601200
              ELSE JUMP OUT TO L);                                          31601300
            DS:=2 LIT "NO";                                                 31601400
            GO XIT;                                                         31601500
        L:  X:=TALLY; DS:=X CHR;                                            31601600
        XIT: DS:=13 LIT " SYNTAX ERRS=";                                    31601700
            END;                                                            31601800
     STREAM PROCEDURE BUFFERNAMELESS(B,SIZE,BUFF); VALUE B,SIZE;            31601900
            BEGIN                                                           31602000
            SI:=LOC B; SI:=SI+7; DI:=BUFF;                                  31602100
            IF SC="0" THEN                                                  31602200
                DS:=14 LIT "CODE BUFFER IS "                                31602300
            ELSE                                                            31602400
            IF SC="1" THEN                                                  31602500
                DS:=18 LIT "UTILITY BUFFER IS "                             31602600
            ELSE                                                            31602700
                BEGIN                                                       31602800
                DS:=8 LIT "BUFFER 0";                                       31602900
                2(DS:=3 RESET; 3(IF SB THEN DS:=SET ELSE                    31603000
                    DS:=RESET; SKIP SB));                                   31603100
                DS:=4 LIT " IS ";                                           31603200
                END;                                                        31603300
            SI:=LOC SIZE; DS:=4 DEC;                                        31603400
            DS:=5 LIT " LONG";                                              31603500
            DI:=DI-9; DS:=3 FILL;                                           31603600
            END;                                                            31603700
        EMITLITERAL(63);                                                    31610000
        SEGDICT[S]:=0&SEGNO[CTF]&A[CTSF];                                   31620000
        LSEG:=MAX(LSEG,A);                                                  31621000
        IF LEVELCOUNT NEQ 0 THEN PRINTERROR(7);                             31630000
        NT5:=EMPTY;                                                         31640000
        FOR NT1:=NEXTLABEL-1 STEP -1 UNTIL 0 DO                             31650000
        IF NOT BL((NT2:=LABELS[NT1]).[1:1]) THEN                            31660000
        BEGIN                                                               31670000
            FIRSTSCAN:=COREADDR(TESTBUFFER);;                               31680000
```

```
                COUNT:=8;                                                    31690000
                MOVE(1,LNAMES[NT1],TESTBUFFER);                              31700000
                PRINTERROR(160);                                             31710000
           END ELSE                                                          31720000
           IF NT2.[CF] LSS EMPTY THEN                                        31730000
           BEGIN                                                             31740000
                LL:=NT2.[18:9];                                              31741000
                NT4:=NT2.[CF]; NT3:=NT2.[27:6];                              31750000
                NT2:=8&NT2[27:3:15];                                         31760000
                WHILE NT4 NEQ EMPTY DO                                       31770000
                BEGIN                                                        31780000
                     IF DEBUGN THEN DEBUGOUT(NT2,NT3,NT4);                   31781000
                     IF LEVELCOUNT:=(NT6:=EDOC[NT3,NT4]).[SF]-LL             31870000
                     GTR 0 THEN                                              31870050
                          BEGIN                                              31870100
                          IL:=10-REAL(SEGDICT[NT3] LSS 0 AND LL=0);          31870150
                          EDOC[NT3,NT4-1]:=-IL&(LEVELCOUNT)[CTSCF];          31870200
                          IF DEBUGN THEN                                     31870300
                               DEBUGOUT(-IL&(LEVELCOUNT)[CTSCF],             31870400
                                    NT3,NT4-1);                              31870500
                          END;                                               31870600
                          EDOC[NT3,NT4]:=NT2;                                31880000
                NT3:=NT6.[FF]; NT4:=NT6.[CF];                                31960000
                END;                                                         31970000
           END;                                                              31980000
           FOR NT1:=NEXTBUFF-1 STEP -1 UNTIL 2 DO                            32000000
                BEGIN                                                        32001000
                IF BUFFERS[0,NT1].[SF]=0 THEN BUFFERS[0,NT1].[SF]:=1020;     32010000
                IF NT2:=BUFFERS[0,NT1]<0 THEN                                32011000
                   BEGIN                                                     32011100
                   DBUFFSIZE:=MAX(DBUFFSIZE,NT2.[SF]);                       32011200
                   BUFFERS[0,NT1]:=ABS(NT2);                                 32011300
                   END;                                                      32011400
                END;                                                         32011500
           IF NOT ERRTOG THEN                                                32020000
           BEGIN                                                             32030000
                IF PP.[CF] NEQ EMPTY THEN                                    32031000
                WRITE(COEFILE,30,PDESC[*]);                                  32032000
                FOR PP:=0 STEP 1 UNTIL NEXTSEG DO                            32040000
                     BEGIN                                                   32045000
                     SEGDICT[PP].[FF]:=SEGNO;                                32050000
                     SEGDICT[PP].[CF]:=0;                                    32051000
                     TRANSFEROUT(SIZE:=SEGDICT[PP].[SF],30,COEFILE,          32055000
                          EDOC[PP,*]);                                       32060000
                     SEGNO:=SEGNO+((SIZE + 29) DIV 30);                      32060100
                     END;                                                    32060200
                BUFFERS[0,0].[SF]:=LSEG;                                     32060500
                BUFFERS[0,1].[SF]:=MIN(DBUFFSIZE,1020);                      32061000
                TRANSFEROUT(NEXTBUFF,30,COEFILE,BUFFERS[0,*]);               32070000
                TRANSFEROUT(NEXTBUFF,30,COEFILE,BNAMES[*]);                  32080000
                HEADER[0]:=SEGNO;                                            32090000
                TRANSFEROUT(NEXTPATTERN,30,COEFILE,PNAMES[*]);               32100000
                TRANSFEROUT(HEADER[2]:=NEXTPATTERN,30,COEFILE,               32110000
                          PATTERNS[0,*]);                                    32120000
                SEGNO:=SEGNO+2×((NEXTPATTERN+29)DIV 30);                     32130000
                TRANSFEROUT(HEADER[3]:=NEXTSEG+1,30,COEFILE,SEGDICT[*]);     32140000
                HEADER[1]:=NEXTUNIT;                                         32140005
                IF NEXTUNIT GTR 0 AND NOT CONF THEN                          32140010
                BEGIN                                                        32140020
              * IF TAPEQUATED THEN                                           32140100
```

```
                    BEGIN                                                    32140200
                    UNITABLE[1,0]:=UNITS[1,UNIT];                            32140300
                    MOVE(1,UNITS[0,UNIT],UNITABLE[0,0]);                     32140400
                    END;                                                     32140500
               WRITE(COEFILE,NEXTUNIT,UNITABLE[0,*]);                        32150000
               WRITE(COEFILE,NEXTUNIT,UNITABLE[1,*]);                        32160000
               END;                                                          32160100
               IF THISTEST GEQ 0 THEN                                        32160110
                    TESTARRAY[THISTEST],[FF]:=REAL(MAKETAPE);                32160120
               IF NUMBEROFTESTS GTR 0 THEN                                   32160200
                    TRANSFEROUT(NUMBEROFTESTS+1,30,COEFILE,TESTARRAY);       32160300
               SEGNO:=SEGNO+1+(NEXTSEG DIV 30)+                              32170000
               2*REAL(NEXTUNIT GTR 0 AND NOT CONF)+                          32180000
                    REAL(CONF AND TRUE)*((NUMBEROFTESTS+30)DIV 30);          32180100
               HEADER[6]:=NEXTBUFF;                                          32210000
               HEADER[7]:=REAL(MAKETAPE)&LSEG[CTF];                          32220000
               MAKETAPE:=FALSE;                                              32250000
               HEADER[8]:=NUMBEROFTESTS;                                     32260000
               HEADER[20]:=NUMBEROFTESTS;                                    32261000
               HEADER[21]:=ABS(HEADER[21]);  %IN CASE OF STACK CARD...       32262000
               REWIND(COEFILE);                                              32270000
               WRITE(COEFILE,30,HEADER[*]);                                  32280000
          END;                                                               32290000
          REWIND(COEFILE);                                                   32300000
          IF ERRTOG THEN                                                     32300100
               IF CSWITCH NEQ 0 OR LST THEN                                  32300200
                    IF LASTERROR NEQ 0 THEN                                  32300300
                    BEGIN                                                    32300400
                         WRITE(OUTBUFFER[*],LA);                             32300500
                         OUTBUFFER[11]:=DECMAL(ABS(LASTERROR));              32300600
                         WRITE(LFILE[DBL],15,OUTBUFFER[*]);                  32300700
                    END;                                                     32300800
          IF HTOG THEN                                                       32310000
          BEGIN                                                              32320000
               P:=0;                                                         32330000
               FOR B:=0 STEP 1 UNTIL NEXTSEG DO                              32340000
                    P:=P+SEGDICT[B].LSF;                                     32350000
               WRITE(LFILE[DBL]);                                            32360000
               WRITE(LFILE[DBL],EFF,ERRORS,(TIME(1)-TIME1)DIV 60);           32370000
               WRITE(LFILE[DBL],SEGSIZEF,NEXTSEG+1,P);                       32380000
               WRITE(LFILE[DBL],PATSF,NEXTPATTERN);                          32390000
               FOR NT1:=0 STEP 1 UNTIL NEXTBUFF-1 DO                         32390100
                    BEGIN                                                    32390200
                    CLEAR(OUTBUFFER,15);                                     32390300
                    BUFFERMESS(NT1,BUFFERS[0,NT1],[SF],OUTBUFFER);           32390400
                    WRITE(LFILE[DBL],15,OUTBUFFER[*]);                       32390500
                    END;                                                     32390600
               WRITE(LFILE[DBL],DISKSIZEF,SEGNO+2);                          32400000
               WRITE(LFILE[PAGE]);                                           32410000
          END;                                                               32430000
          COMPILING:=FALSE;                                                  32440000
          IF PATCHSWITCH=1 OR INSWITCH NEQ 2 THEN                            32450000
               CLOSE(PATCH);                                                 32460000
          IF PTOG THEN CLOSE(TAPE);                                          32470000
          IF NTOG THEN                                                       32510000
          BEGIN                                                              32520000
               NTOG:=FALSE;                                                  32530000
               LOCK(NEW,*);                                                  32540000
          END;                                                               32550000
          IF LSWITCH NEQ OUTSWITCH THEN                                      32550100
```

```
                FINDOUTPUT(OUTSWITCH,OUTSWITCH:=10);                                32550200
            EOCMSG(OUTBUFFER,PMFID,PFID,ERRORS);                                    32550300
            IF CSWITCH=0 THEN WRITE(TWX);                                           32550400
            IF NOT ERRTOG THEN                                                      32560000
                BEGIN                                                               32561000
                IF CONF OR SAVETOG THEN                                             32570000
                BEGIN                                                               32580000
                    LOCK(CUEFILE,*);                                                32590000
                    WRITE(CFILE,9,OUTBUFFER[*]);                                    32591000
                    GO RETURN1;                                                     32610000
                END ELSE                                                            32620000
                IF LIBONLY THEN                                                     32630000
                BEGIN                                                               32640000
                    WRITE(CFILE,9,OUTBUFFER[*]);                                    32641000
                    LIBONLY:=FALSE;                                                 32650000
                    GO RETURN1;                                                     32660000
                END ELSE                                                            32670000
                BEGIN                                                               32680000
                    WRITE(CFILE,9,OUTBUFFER[*]);                                    32680100
                    GO MCCLRUN;                                                     32680200
                END;                                                                32680300
                END;                                                                32681000
            CONF:=FALSE;                                                            32690000
            WRITE(CFILE,9,OUTBUFFER[*]);                                            32691000
        XIT: END;                                                                   32720000
    %#########COMPILER BLOCK CODE#################################################32730000
        INITIALIZE;                                                                 32740000
        WHILE WORD NEQ NIGEB DO SCAN;                                               32750000
        COMPOUNDSTATEMENT;                                                          32760000
        WRAPUP;                                                                     32770000
         $POP OMIT                                                                  32770100
         $SET OMIT=NOT OMITCOMPILER                                                 32770102
        GO RETURN;                                                                  32770104
         $POP OMIT                                                                  32770106
            END;                                                                    32780000
    %#########END OF COMPILER BLOCK###############################################32790000
    FINISHOFF:                                                                      32800000
       GO RETURN1;                                                                  32810000
    RUNTAPETESTS:                                                                   32920000
     MAKETAPE:=TESTARRAY[0].[27:6]=0;                                               33020000
       TESTINX:=TEST:=-1;                                                           33030000
    MCCLRUN:                                                                        33040000
    ERROR:=ERRORS:=0;                                                               33050000
    IF NOT TAPETEST THEN MAKETAPE:=BL(HEADER[7]);                                   33061000
                                                                                    33061001
                                                                                    33061002
    COMMENT  THE FOLLOWING CODE READS THE BUFFER TABLE INTO                         33061005
             COMPAREBUFF[*].  IT IS REQUIRED TO BE IN CORE                          33061010
             PRIOR TO ENTERING THE INTERPRETER BLOCK SO THAT                        33061015
             THE SIZE OF THE BUFFERS MAY BE DETERMINED;                             33061020
                                                                                    33061025
                                                                                    33061030
    READ(CODEFILE[HEADER[0]],NT1:=HEADER[6],COMPAREBUFF[*]);                        33070000
    READ(CODEFILE);                                                                 33080000
    FOR NT2:=NT1 STEP 1 UNTIL 7 DO COMPAREBUFF[NT2]:=0;                             %140533090000
                                                                                    %150133100000
    %#########INTERPRETER BLOCK DECLARATIONS START HERE#########################33160000
    BEGIN                                                                           33170000
     $SET OMIT=NOT OMITINTERPRETER                                                  33170100
        GO RETURN;                                                                  33170200
```

```
 $POP OMIT                                                                  33170300
 $SET OMIT=OMITINTERPRETER                                                  33170400
DEFINE IFL=42:6#,                                                           33180000
       SREG=LEVELCOUNT#,                                          %140433181000
       IBUFF=COREADDR(CODE)#,                                               33190000
       DBUFF=COREADDR(PATBUFF[1])#,                                         33200000
      CODE[CODE1]=EDOC[S,CODE1]#,                                           33201000
       LF=2:3#,                                                             33201100
       LB=5:3#,                                                             33201200
       NROFBVAR=4#,                                               %140633201300
       MAXSWITCH=8#;                                                        33210000
%*************************************************************************33220000
SAVE ARRAY                                                                  33230000
   B2[0:COMPAREBUFF[2].[SF]+1],                                             33240000
   B3[0:COMPAREBUFF[3].[SF]+1],                                             33250000
   B4[0:COMPAREBUFF[4].[SF]+1],                                             33260000
   B5[0:COMPAREBUFF[5].[SF]+1],                                             33270000
   B6[0:COMPAREBUFF[6].[SF]+1],                                             33280000
   B7[0:COMPAREBUFF[7].[SF]+1];                                             33290000
                                                                            33290005
                                                                            33290010
COMMENT  THE ABOVE ARE BUFFERS 2-7;                                         33290015
                                                                            33290020
%*************************************************************************33540000
SAVE ARRAY                                                                  33550000
   PATBUFF[0:COMPAREBUFF[1].[SF]+1];                                        33552000
                                                                            33552005
COMMENT  PATBUFF IS BUFFER NUMBER 1.  IT IS USED FOR READS,WRITES,          33552010
         DISPLAYS, PRINTS, WHEN NO BUFFER PART IS SPECIFIED.  IT            33552015
         IS ALSO USED FOR TEMPORARY STORAGE DURING SHIFTS AND               33552020
         ROTATES.  DURING READS WHICH EXPECT A PARTICULAR PATTERN,          33552025
         PATBUFF HOLDS A COPY OF THE PATTERN FOR COMPARISON.                33552030
         ;                                                                  33552035
                                                                            33552040
%*************************************************************************33560000
ARRAY                                                                       33570000
   EDOC[0:HEADER[3]-1,0:IF NT1:=HEADER[7].[FF]=0 THEN 511 ELSE NT1],        33571000
                                                                            33571005
   %EDOC HOLDS THE CODE SEGMENTS.  WHEN A NEW CODE SEG IS                   33571010
   %REQUIRED, IT IS READ INTO THE APPROPRIATE EDOC ROW.  CODE               33571015
   %SEGS ARE NOT BROUGHT IN UNTIL REQUIRED.  SEGDICT[*] IS                  33571020
   %USED TO IDENTIFY "PRESENT" AND "NON-PRESENT" SEGMENTS                   33571025
                                                                            33571030
   STACK[0:IF NT1:=HEADER[21]=0 THEN MAXLEVELS-1 ELSE NT1],     %140433580000
   %                                                                        33580001
   %                                                                        33580002
   %STACK IS THE PSEUDO-STACK.  SREG POINTS TO                 %140433580005
   %THE NEXT AVAILABLE WORD IN STACK. THE FORMAT OF A          %140433580010
   %WORD IN STACK IS AS FOLLOWS:                              %140433580015
   %                                                                        33580020
   %     [1:1] = 0, INDICATES THAT LOOP AT NEXT LOWER LEVEL                 33580025
   %                IS NOT IN ITS FIRST TIME THRU                           33580030
   %           = 1, PREVIOUS LOOP IN FIRST TIME THRU                        33580035
   %     [2:5] = 0                                                          33580040
   %     [SF ] = RELATIVE ADDRESS FOR SUBROUTINE EXIT                       33580045
   %     [18:6]= SEGMENT NUMBER FOR SUBROUTINE EXIT                         33580050
   %     [24:9]= RELATIVE ADDRESS OF END OF LOOP OR SUBROUTINE              33580055
   %     [CF  ]=                                                            33580060
   %               IF [1:1] THEN 1,                                         33580065
   %               OTHERWISE, REMAINING LOOP COUNT FOR                      33580070
```

```
%                    PREVIOUS LOOP                                          33580075
%                                                                           33580080
%                                                                           33580085
UNITABLE[0:1,0:MAX(HEADER[1]-1,0)],                                         33590000
%                                                                           33590005
%                                                                           33590010
%  UNITABLE CONTAINS INFORMATION ABOUT UNITS ATTACHED TO                    33590015
%  ONLINE/MAINT.  AT PRESENT, ONLY ONE TAPE UNIT IS ATTACHED                33590020
%  AT A TIME (THIS IS DONE TO CUT DOWN ON THE AMOUNT OF                     33590025
%  SAVE CORE REQUIRED BY THE PROGRAM.  CONSEQUENTLY, THE                    33590030
%  USE OF THIS ARRAY IS SOMEWHAT INEFFICIENT)                               33590035
%                                                                           33590040
%  UNITABLE[0,0]=MNEMONIC FOR UNIT                                          33590045
%  UNITABLE[1,0]                                                            33590050
%                                                                           33590055
%          [FF ]=HARDWARE UNIT NUMBER FOR UNIT                              33590060
%          [CF ]=LOGICAL UNIT NUMBER FOR UNIT                               33590065
%                                                                           33590070
%                                                                           33590075
%                                                                           33590080
PATTERNS[0:MAX(HEADER[2]-1,0)],                                             33600000
%                                                                           33600005
%                                                                           33600010
%  PATTERNS[P]=                                                             33600015
%                                                                           33600020
%          [1:1]=0 REGULAR PATTERN                                          33600025
%               =1 TAPE LABEL PATTERN                                       33600030
%          [2:3]=0,PATTERN NOT IN CORE                                      33600035
%               NEQ 0, BUFFER INDEX OF FIRST BUFFER CONTAINING              33600040
%               PATTERN P                                                   33600045
%          [5:3]=0, PATTERN NOT IN CORE                                     33600050
%               NEQ 0, BUFFER INDEX OF LAST BUFFER CONTAINING               33600055
%               THIS PATTERN                                                33600060
%          REMAINDER OF WORD SAME AS GENERATED BY COMPILER                  33600065
%               (PATTERNS[0,P])                                             33600070
%                                                                           33600075
%                                                                           33600080
BUFFERS[0:HEADER[6]-1],                                                     33610000
%                                                                           33610005
%                                                                           33610010
%BUFFERS[0]=                                                                33610015
%                                                                           33610020
%       [0:8]=0                                                             33610025
%       [SF ]=SIZE OF LONGEST CODE SEGMENT                                  33610030
%       [FF ]=3"77777"                                                      33610035
%       [CF ]=0                                                             33610040
%                                                                           33610045
%BUFFERS[B]=     (B NEQ 0)                                                  33610050
%                                                                           33610055
%       [0:2]=0                                                             33610060
%       [2:3]=LINK TO NEXT BUFFER CONTAINING SAME PATTERN                   33610065
%            (0 IF NO PATTERN IN BUFFER OR BUFFER IS LAST                   33610070
%             WITH PATTERN)                                                 33610075
%       [5:3]=LINK TO PREVIOUS BUFFER CONTAINING SAME PATTERN               33610080
%            (0 IF NO PATTERN IN BUFFER OR BUFFER IS FIRST                  33610085
%             WITH PATTERN)                                                 33610090
%       [SF ]=SIZE OF BUFFER IN WORDS                                       33610095
%       [FF ]=3"77777", NO PATTERN IN BUFFER                                33610100
%            NEQ 3"77777", INTERNAL PATTERN NUMBER OF PATTERN               33610105
%            IN BUFFER                                                      33610110
```

```
%       [CF ]=CORE ADDRESS OF BUFFER                                                    33610115
%                                                                                       33610120
%                                                                                       33610125
SEGDICT[0:HEADER[3]-1],                                                                 33620000
%                                                                                       33620005
%                                                                                       33620010
%SEGDICT[S]=                                                                            33620015
%                                                                                       33620020
%       [0:1]=0                                                                         33620025
%       [1:1]=0, NORMAL SEGMENT                                                         33620030
%            =1, SUBROUTINE SEGMENT                                                     33620035
%       [2:6]=0                                                                         33620040
%       [SF ]=SIZE OF SEGMENT IN WORDS                                                  33620045
%       [FF ]=RECORD NUMBER IN CODE FILE WHERE SEG STARTS                               33620050
%       [CF ]=0, SEGMENTS NOT PRESENT                                                   33620055
%            =3"77777", SEGMENT PRESENT                                                 33620060
%                                                                                       33620065
%                                                                                       33620070
TESTDIRECTORY[0:HEADER[8]],                                                             33621000
BV[0:NROFBVAR*(HEADER[6]-1)-1],                                                %140633622000
%   BV CONTAINS                                                                %140633622010
%            WRDCOUNT,                                                         %140633622020
%            IOD,                                                              %140633622030
%            RESULT DESC,                                                      %140633622040
%            2*REAL(SIZERR)+REAL(COMPAREDATA)                                  %140633622050
%   FOR EACH BUFFER (EXCEPT BUFFER 0);                                         %140633622060
%                                                                                       33622070
PNAMES[0:MAX(HEADER[2]-1,0)],                                                           33630000
BNAMES[0:HEABER[6]-1];                                                                  33640000
%***************************************************************************************33650000
  INTEGER P,B,SIZE,U,LOOPCOUNT,TALLY,WRDCOUNT;                                 %140633660000
%                                                                                       33660005
%                                                                                       33660010
%  P AND B CONTAIN THE PATTERN AND BUFFER BEING USED IN                                 33660015
%          THE CURRENT I/O OPERATION                                                    33660020
%  SIZE AND U ARE USED FOR TEMPORARY STORAGE                                            33660025
%  LOOPCOUNT CONTAINS THE NUMBER OF TIMES THE CURRENT                                   33660030
%          LOOP HAS YET TO BE PERFORMED (VALID ONLY IF                                  33660035
%          LOOPCOUNT.[1:1]=0)                                                           33660040
%  TALLY IS THE USER VARIABLE "TALLY"                                                   33660045
%  WRDCOUNT CONTAINS THE WORD COUNT FROM THE LAST READ OR SPACE                         33660050
%          OPERATION                                                                    33660055
%                                                                                       33660060
%                                                                                       33660065
%***************************************************************************************33661000
FORMAT INVUNIT("INV UNIT=="),                                                           33661100
       DASH(72("=")),                                                                   33661200
       NOTDONE("TEST #",I3," NOT RUN (WRITE LOCK)"),                                    33661300
       EOTESTF("END OF RESULTS FOR TEST #",I2),                                         33661400
       ERRSF(I5," ERRORS DETECTED"),                                                    33661500
       UCHANGED("TEST UNIT CHANGED, TEST TAPE NOW ON ",A3),                     %140533661550
        INTALLY("ENTER TALLY"),                                                         33661600
        DTALLY("TALLY= ",I8),                                                   %140633661650
       INVTALLY("=INVALID I/O SIZE=",I8,":S=",I2,",A=",I3),                             33661700
       INVTALLY1(10("#"),"=INVALID I/O SIZE=",I8,":S=",I2,",A=",                        33661800
                 I3," ",73("#")),                                                       33661900
     INTALLYERR("INV ENTER TALLY: S=",I2,", A=",I3),                                    33662000
     INTALLYERR1(10("#"),"INV ENTER TALLY: S=",I2,", A=",I3," ",                        33662100
         81("#")),                                                                      33662200
     STKOFLOW("=SIMPL STACK OVERFLOW: S = ",I2,", A = ",I3),                            33662300
```

```
      STKOFLOW1(10("#"),"-SIMPL STACK OVERFLOW: S = ",I2,                33662400
            ", A = ",I3," ",71("#")),                                    33662500
       PATERR("-PATTERN ERROR NR",I4," S=",I2,",A=",I3,                  33662600
            "←");                                                        33662700
%*************************************************************************33670000
      REAL JUNK,INSTRUCTION,IOD1,SAVER,SAVES,LIOD;                %140633680000
      %                                                                  33680005
      %                                                                  33680010
      %  JUNK IS USED FOR TEMPORARY STORAGE                              33680015
      %  INSTRUCTION CONTAINS THE SIMPL INSTRUCTION CURRENTLY            33680020
      %     BEING EXECUTED                                               33680025
      %  IOD1 CONTAINS THE SECOND WORD OF THE CURRENT I/O INSTRUCTION     33680030
      %  SAVER CONTAINS THE LAST (NON-RETRY) RESULT DESCRIPTION           33680035
      %  SAVES CONTAINS THE VALUE OF "S" WITH FIRST ENTRY INTO STACK%140433680040
      %  LIOD CONTAINS THE LAST (NON-RETRY) IOD                           33680045
      %                                                          %140433680050
      %                                                          %140633680055
%*************************************************************************33690000
      BOOLEAN TOGGLE,SIZERR,TABLEPRESENT;                                33700000
      %                                                                  33700005
      %                                                                  33700010
      %TOGGLE IS THE USER VARIABLE "TOGGLE"                             33700015
      %SIZERR IS TRUE IF A SIZE ERROR OCCURED ON THE LAST I/O           33700020
      %TABLEPRESENT IS TRUE IF THE PATTERN AND BUFFER NAME BLOCKS       33700025
      %    HAVE BEEN READ INTO PNAMES[*] AND BNAMES[*]                  33700030
      %                                                                 33700035
      %                                                                 33700040
%*************************************************************************33700100
      LIST                                                       %140633700200
           UNL(UNAME(UNIT)),                                     %140633700300
           TLLY(TALLY);                                          %140633700400
%*************************************************************************33710000
      PROCEDURE GETSEGMENT(SEGMENT); VALUE SEGMENT; INTEGER SEGMENT;     33720000
         BEGIN                                                           33730000
         COMMENT  IF SEGDICT[SEGMENT].[CF] = 0, SEGMENT IS READ IN FROM  33730005
                  DISK AND SEGDICT[SEGMENT].[CF] GETS EMPTY, S REPLACED  33730010
                  BY SEGMENT;                                            33730015
         IF (JUNK:=SEGDICT[SEGMENT]).[CF]=0 THEN                         33739000
            BEGIN                                                        33739100
            READ SEEK(CODEFILE[JUNK.[FF]]);                              33740000
            TRANSFERIN(JUNK.[SF],30,CODEFILE,EDOC[SEGMENT,*]);           33750000
            SEGDICT[SEGMENT]:=JUNK&EMPTY[CTC];                           33751000
            LOCK(EDOC[SEGMENT,*]);                                       33751500
            END;                                                         33752000
         S:=SEGMENT;                                                     33760000
         END;                                                            33770000
%*************************************************************************33770005
        PROCEDURE STARTAPEIO(IOD,RESULT); VALUE IOD; REAL IOD,RESULT;    33770010
            FORWARD;                                                     33770020
%*************************************************************************33780000
      REAL PROCEDURE INSTR;                                              33790000
         BEGIN                                                           33800000
         COMMENT  INSTR IS RESPONSIBLE FOR TAKING INSTRUCTIONS FROM      33800005
                  EDOC AND PASSING THEM TO OTHER ROUTINES.  INSTR        33800010
                  HANDLES BRANCHES, LOOP ENTRY , AND SUBROUTINE          33800015
                  ENTRY AND EXIT.  IT ALSO PASSES OVER NOOP (ZERO)       33800020
                  INSTRUCTIONS.  INSTR RETURNS THE NEXT INSTRUCTION      33800025
                  TO BE INTERPRETED;                                     33800030
                                                                         33800035
      LABEL NEXT,XIT;                                          %140233810000
```

```
  DEFINE I=NT2#,SS=NT3#,AA=NT4#,TYPE=NT5#,J=NT6#;                    %140233811000
$SET OMIT=OMIT OR NOT DEBUG                                                33811100
    STREAM PROCEDURE OCTADES(N,A,B); VALUE N,A,B;                          33811200
        BEGIN SI:=LOC B; SI:=SI-N; N(SKIP 3 SB);                           33811300
              DI:=B;                                                       33811400
              N(DS:=3 RESET; 3(IF SB THEN DS:=SET ELSE DS:=                33811500
                               RESET; SKIP SB));                           33811600
        END;                                                               33811700
    PROCEDURE DEBUGOUT(I,S,A); VALUE I,S,A; REAL I; INTEGER S,A;           33811800
        COMMENT  DEBUGOUT PROVIDES A TRACE ON THE OUTPUT FILE              33811805
                 DEVICE IF DEBUG IS SET TRUE;                              33811810
        BEGIN                                                              33811900
        REAL JUNK;                                                         33812000
        CLEAR(OUTBUFFER,4);                                                33812100
        EDIT(1,I,OUTBUFFER[1],0,1,JUNK,JUNK,0);                            33812200
        OCTADES(3,S,I:=COREADDR(OUTBUFFER));                               33812300
        OCTADES(3,A,BL(I) OR BL(3"400000"));                               33812400
        WRITE(OUTFI,4,OUTBUFFER[*]);                                       33812500
        END;                                                               33812600
$POP OMIT                                                                  33812700
NEXT:                                                                      33820000
$SET OMIT=OMIT OR NOT DEBUG                                                33820100
  DEBUGOUT(CODE[A],S,A);                                                   33820200
$POP OMIT                                                                  33820300
  IF I:=CODE[A]=0 THEN                                                     33830000
     BEGIN                                                                 33840000
     A:=A+1; GO NEXT;                                                      33850000
     END                                                                   33860000
  ELSE IF TYPE:=I.[IFL]=8 THEN                                         %140133870000
  BEGIN                                                                    33871000
  SS:=S; AA:=A+1;                                                          33872000
     IF NT1:=I.[FF]=S THEN BEGIN A:=I.[SCF]; GO NEXT; END ELSE             33880000
     BEGIN                                                                 33890000
     GETSEGMENT(NT1);                                                      33900000
     A:=I.[SCF];                                                           33910000
     GO NEXT;                                                              33920000
     END;                                                                  33930000
  END;                                                                     33931000
  A:=A+1;                                                                  33940000
  IF TYPE=63 THEN TYPE:=MAXSWITCH ELSE                                 %140133950000
  IF TYPE=0 THEN                                                       %140133960000
  BEGIN                                                                    33961000
       IF SREG GTR HEADER[21] THEN                                     %140433961100
            BEGIN                                                          33961200
            IF CSWITCH=0 THEN WRITE(TWX[DBL]);                             33961250
            WRITE(CFILE,STKOFLOW,SNA);                                     33961300
            IF NOT TWXOUT THEN                                             33961400
                  BEGIN                                                    33961500
                  WRITE(OUTFI[DBL]);                                       33961600
                  WRITE(OUTFI[PAGE],STKOFLOW1,SNA);                        33961700
                  END; GO EXIT;                                            33961800
            END;                                                           33961900
       IF SREG=0 THEN SAVES:=S;                                        %140433961910
       IF I LSS 0 THEN                                                     33962000
            LOOPCOUNT:=LOOPCOUNT&AA[CTSF]&SS[18:42:6];                     33963000
       STACK[SREG]:=LOOPCOUNT&I[24:24:9];                              %140433970000
       LOOPCOUNT:=-1; SREG:=SREG+1;                                    %140433980000
       GO NEXT;                                                            33990000
  END;                                                                     34000000
  I.[IFL]:=TYPE;                                                       %140134000500
```

```
    IF STOPPER NEQ 0 OR JUNKB:=BOOLEAN(TIME(-2)) THEN                    %140234001000
    IF STOPPERCHECK(JUNKB) THEN                                          %140234002000
    BEGIN                                                                %140234003000
        IF NOT CONF THEN I:=8 ELSE                                       %140234004000
        IF SREG=0 THEN I:=12 ELSE                                        %140434005000
        BEGIN                                                            %140234006000
            SREG:=1;                                                     %140434007000
            LOOPCOUNT:=0;                                                %140234008000
            S:=SAVES;                                                    %140434009000
            I:=10;                                                       %140234010000
        END;                                                             %140234011000
        IF HEADER[1]=0 THEN GO XIT;                                      %140234012000
        J:=COREADDR(STOPPER);                                            %140234013000
        STARTAPEIO(3"4200000000"&UNITABLE[1,0][3:28:5],STOPPER);         %140234014000
        WAIT(J,IOMASK);                                                  %140234015000
XIT:    STOPPER:=0;                                                      %140234016000
    END;                                                                 %140234017000
    INSTR:=I;                                                            %140234018000
    END;                                                                        34020000
%***************************************************************************34030000
DEFINE NEXTINSTRUCTION=                                                     34040000
      GO TO S0#;                                                         %140434050000
%***************************************************************************34060000
LABEL S0,S1,S2,S3,S4,S5,S6,S7,DONE,S9,S10,                               %140434070000
      S11,S12,S13,S14,S15;                                               %140634080000
%***************************************************************************34090000
SWITCH SW:=S1,S2,S3,S4,S5,S6,S7,DONE,S9,S10,S11,S12,S13,S14,S15;         %140634100000
%***************************************************************************34350000
 $SET OMIT=OMIT OR DEBUG                                                    34530050
%***************************************************************************34530100
BOOLEAN PROCEDURE PATTERNGENERATOR(CHRS,PATBUFF);                           34530150
VALUE CHRS,PATBUFF; INTEGER CHRS,PATBUFF;                                   34530200
COMMENT  SEE COMMENT AT SEQ NR 19650005;                                    34530250
BEGIN                                                                       34530300
%***************************************************************************34530350
INTEGER STREAM PROCEDURE STRINGSCAN(FS,LS,PAT,P,MAX,ET,OT);                 34530400
VALUE FS,PAT,MAX,OT;                                                        34530450
   BEGIN                                                                    34530500
   LABEL XIT,CHECK,ERR; LOCAL CHRS;                                         34530550
   SI:=FS;DI:=PAT;                                                          34530600
   IF SC="" THEN                                                            34530650
      BEGIN SI:=SI+1;TALLY:=1;                                              34530700
      IF SC="" THEN DS:=CHR ELSE BEGIN CHRS:=TALLY;TALLY:=2;GO ERR;END;     34530750
      END ELSE                                                              34530800
      BEGIN                                                                 34530850
      OT(MAX(2(IF SC="" THEN JUMP OUT 3 TO CHECK;                           34530900
               SKIP 3 SB;3(IF SB THEN DS:=SET ELSE DS:=RESET;SKIP SB));     34530950
             TALLY:=TALLY+1);JUMP OUT TO CHECK);                            34531000
      MAX(IF SC="" THEN JUMP OUT;DS:=CHR;TALLY:=TALLY+1);                   34531050
      END;                                                                  34531100
CHECK:IF SC NEQ "" THEN                                                     34531150
      BEGIN CHRS:=TALLY;TALLY:=1;                                           34531200
ERR:  FS:=SI;PAT:=BI;MAX:=TALLY;SI:=LOC MAX;DI:=ET;DS:=WDS;                 34531250
      TALLY:=CHRS;                                                          34531300
      END ELSE BEGIN SI:=SI+1;FS:=SI;PAT:=DI;END;                           34531350
XIT:  STRINGSCAN:=TALLY,SI:=LOC FS;DI:=LS;DS:=WDS;SI:=LOC PAT;              34531400
      DI:=P;DS:=WDS;                                                        34531450
   END;                                                                     34531500
%***************************************************************************34531550
INTEGER STREAM PROCEDURE SCAN(FS,LSCAN,TESTB,SPC); VALUE FS;                34531600
```

```
      BEGIN                                                                    34531650
      LOCAL NR; LABEL B;                                                       34531700
      DI:=SPC;DS:=8 LIT "0";                                                   34531750
      SI:=FS; B: IF SC=" " THEN BEGIN SI:=SI+1;GO B;END;                       34531800
      IF SC=ALPHA THEN                                                         34531850
         IF SC GEQ "0" THEN                                                    34531900
         BEGIN SI:=SI+1;TALLY:=1;NR:=TALLY;                                    34531950
               7(IF SC GEQ "0" THEN BEGIN SI:=SI+1;TALLY:=TALLY+1;END          34532000
                 ELSE JUMP OUT);                                               34532050
               FS:=TALLY; SI:=SI-FS; DI:=TESTB; DS:=FS OCT;                    34532100
         END ELSE                                                              34532150
         BEGIN TALLY:=1;SI:=SI+1;                                              34532200
         6(IF SC=ALPHA THEN BEGIN SI:=SI+1;TALLY:=TALLY+1;END                  34532250
           ELSE JUMP OUT);                                                     34532300
         END                                                                   34532350
      ELSE                                                                     34532400
         BEGIN DI:=SPC;DI:=DI+7;DS:=CHR;END;                                   34532450
      FS:=SI;SI:=LOC FS;DI:=LSCAN;DS:=WDS;                                     34532500
      SCAN:=TALLY;NR(DI:=LOC SCAN;DS:=LIT"+");                                 34532550
      END;                                                                     34532600
    %**************************************************************************34532650
    %**************************************************************************34532700
    STREAM PROCEDURE PROPOGATE(P,JUNK,RI,COUNT,RIMODCOUNT);                    34532750
    VALUE RI,COUNT,RIMODCOUNT;                                                 34532800
      BEGIN                                                                    34532850
      LOCAL T,TRI,TRMC,TC;                                                     34532900
      SI:=LOC RI; SI:=SI+6; DI:=LOC TRI; DI:=DI+7; DS:=CHR;                    34532950
      SI:=LOC RIMODCOUNT; SI:=SI+6; DI:=LOC TRMC; DI:=DI+7; DS:=CHR;           34533000
      SI:=LOC COUNT; SI:=SI+6; DI:=LOC TC; DI:=DI+7; DS:=CHR;                  34533050
      SI:=P; DI:=LOC T; DS:=WDS;                                               34533100
      DI:=JUNK; SI:=T;                                                         34533150
      TC(SI:=SI-32; SI:=SI-32); SI:=SI-COUNT;                                  34533200
      TC(DS:=32 CHR; DS:=32 CHR); DS:=COUNT CHR;                               34533250
      SI:=LOC P; DI:=T; SI:=JUNK;                                              34533300
      TRI(2(32(TC(DS:=32 CHR; DS:=32 CHR); DS:=COUNT CHR;                      34533350
      TC(SI:=SI-32; SI:=SI-32); SI:=SI-COUNT)));                               34533400
      RI(TC(DS:=32 CHR; DS:=32 CHR); DS:=COUNT CHR;                            34533450
      TC(SI:=SI-32; SI:=SI-32); SI:=SI-COUNT);                                 34533500
      TRMC(DS:=32 CHR; DS:=32 CHR);                                            34533550
      DS:=RIMODCOUNT CHR;                                                      34533600
      T:=DI; DI:=P; SI:=LOC T; DS:=WDS;                                        34533650
      END;                                                                     34533700
    %**************************************************************************34533750
    STREAM PROCEDURE RIPPLER(P,RI,INCR); VALUE RI,INCR;                        34533800
      BEGIN                                                                    34533850
      LOCAL TP,B,TRI;                                                          34533900
      %                                                                        34533950
      SI:=LOC RI; SI:=SI+6; DI:=LOC TRI; DI:=DI+7; DS:=CHR;                    34534000
      SI:=P; DI:=LOC TP; DS:=WDS;                                              34534050
      SI:=TP; DI:=LOC B; SI:=SI-1; DI:=DI+7; DS:=CHR;                          34534100
      SI:=LOC B; DI:=TP; SI:=SI+7;                                             34534150
      TRI(2(32(TALLY:=B; TALLY:=TALLY+INCR; B:=TALLY; DS:=CHR; SI:=SI-1)));    34534200
      RI(TALLY:=B; TALLY:=TALLY+INCR; B:=TALLY; DS:=CHR; SI:=SI-1);            34534250
      TP:=DI; DI:=P; SI:=LOC TP; DS:=WDS;                                      34534300
      END;                                                                     34534350
    %**************************************************************************34534400
    INTEGER STREAM PROCEDURE SPECIALMOVE(N,A,B); VALUE N,A,B;                  34534450
      BEGIN LOCAL NN;                                                          34534500
      SI:=LOC N; SI:=SI+6; DI:=LOC NN; DI:=DI+7; DS:=CHR;                      34534550
      SI:=A; DI:=B; NN(DS:=32 CHR; DS:=32 CHR); DS:=N CHR;                     34534600
```

```
    SPECIALMOVE:=DI;                                                    34534650
    END;                                                                34534700
%*******************************************************************34534750
INTEGER SL,P,RI,CR,ET,TRI,NR;                                           34534800
INTEGER SST;                                                            34534850
LABEL PROPED,PROPIT,SIMPLE;                                             34534900
LABEL BACK,RIPPAT,BJBACK,PROP,LOOK,FINISHEDSCANING,XIT;                 34534950
BOOLEAN BJ,OCTLL,LNG,MINUS,LITPAT;                                      34535000
DEFINE SCANR=                                                           34535050
      COUNT:=SCAN(LASTSCAN,LASTSCAN,NR,SPECIALCHR)#,                    34535100
   SCANS(SCANS1)=                                                       34535150
      STRINGSCAN(LASTSCAN,LASTSCAN,P,P,SCANS1,ET,OCTLL)#;               34535200
DEFINE JB=JUNKBUFFER#;                                                  34535210
                                                                        34535250
%                                                                       34535300
IF LITPAT:=CHRS=0 THEN CHRS:=120;                                       34535350
CR:=CHRS;                                                               34535400
P:=PATBUFF;                                                             34535450
WHILE TRUE DO                                                           34535500
   BEGIN OCTLL:=FALSE;                                          %150134535550
BACK:                                                           %150134535600
   SCANR;                                                               34535650
   IF BJ:=COUNT LSS 0 THEN                                              34535700
   RI:=NR ELSE                                                          34535750
   IF SPECIALCHR="""" THEN RI:=CHRS ELSE                                34535800
   IF OCTLL:=COUNT=3 THEN GO BACK ELSE                                  34535850
      BEGIN                                                             34535900
      RI:=CHRS;                                                         34535950
      OCTLL:=FALSE;                                                     34536000
RIPPAT:                                                                 34536050
      ET:=0;                                                            34536100
      SCANR;                                                            34536150
      IF NOT OCTLL THEN                                                 34536190
      IF OCTLL:=(SPECIALCHR NEQ """") THEN                              34536200
      GO RIPPAT;                                                        34536250
      COUNT:=SCANS(1);                                                  34536300
      SCANR;                                                            34536350
      IF (MINUS:=SPECIALCHR="-") OR SPECIALCHR="+" THEN                 34536400
         BEGIN                                                          34536450
         SCANR;                                                         34536500
         NT6:=NR;                                                       34536550
         SCANR;                                                         34536600
         END                                                            34536650
      ELSE NT6:=1;                                                      34536700
      CHRS:=CHRS-RI;                                                    34536750
         IF RI GTR 4096 THEN                                            34536800
            BEGIN                                                       34536850
            RIPPLER(P,4095,IF MINUS THEN 63-NT6 ELSE NT6);              34536900
            RI:=RI-4095;                                                34536950
            END;                                                        34537000
         IF RI GTR 1 THEN                                               34537050
         RIPPLER(P,RI-1,IF MINUS THEN 63-NT6 ELSE NT6);                 34537100
      GO LOOK;                                                          34537150
      END;                                                              34537200
   IF BJ THEN                                                           34537250
      BEGIN                                                             34537300
      OCTLL:=BJ:=FALSE;                                                 34537350
BJBACK: SCANR;                                                          34537400
      IF SPECIALCHR NEQ """" THEN                                       34537450
      IF OCTLL:=COUNT=3 THEN GO TO BJBACK ELSE GO TO RIPPAT;    %140434537500
```

```
            END;                                                                    34537550
         TRI:=0;                                                                    34537600
         LNG:=FALSE;                                                                34537650
         WHILE TRI LSS RI DO                                                        34537700
            BEGIN                                                                   34537750
            ET:=0;                                                                  34537800
            COUNT:=SCANS(MIN(RI-TRI,63));                                           34537850
            IF ET=0 THEN GO PROP ELSE                                               34537900
            IF ET=2 THEN                                                            34537950
               BEGIN                                                                34538000
               SCANR;                                                               34538050
               GO PROP;                                                             34538100
               END ELSE                                                             34538150
            IF LNG:=ET=1 THEN                                                       34538200
               TRI:=TRI+COUNT                                                       34538250
            ELSE                                                                    34538300
               BEGIN                                                                34538350
PROP:                                                                               34538400
               IF LITPAT THEN                                                       34538450
                  BEGIN RI:=TRI+COUNT; GO PROPED; END ELSE                          34538500
               IF TRI:=TRI+COUNT LSS RI THEN                                        34538550
                  BEGIN                                                             34538600
                  IF P.[FF]=0 THEN                                                  34538650
                  IF TRI MOD 8=0 THEN                                               34538700
                  GO SIMPLE;                                                        34538750
                  IF (SST:=((8×P.[CF])+P.[FF]-TRI)) MOD 8= 0 THEN                   34538800
                     BEGIN                                                          34538850
                     IF TRI LSS 8 AND RI GEQ 8×TRI THEN                             34538900
                        BEGIN                                                       34539000
                        JUNK:=0;                                                    34539050
                     PROPOGATE(P,JUNK,7,TRI,0);                                     34539100
                     IF TRI:=8×TRI=RI THEN GO PROPED;                               34539150
                     END                                                            34539200
                  ELSE                                                              34539250
                     BEGIN                                                          34539300
PROPIT:                                                                             34539350
                  JUNK:=0;                                                          34539400
                  IF ET:=(COUNT:=RI-TRI) DIV TRI GTR                                34539450
                  4095 THEN                                                         34539500
                     BEGIN PROPOGATE(P,JB,4095,TRI,0);                              34539550
                     ET:=ET-4095;                                                   34539600
                     JUNK:=0;                                                       34539650
                     END;                                                           34539700
                  PROPOGATE(P,JB,ET,TRI,                                            34539750
                  ENTIER(COUNT MOD TRI));                                           34539800
                  GO PROPED;                                                        34539850
                  END;                                                              34539900
SIMPLE:           VALUEMOVE((RI-TRI) DIV 8,P-TRI DIV 8,P);                          34539950
                  P:=P+((RI-TRI) DIV 8);                                            34540000
                  IF ET:=(RI-TRI) MOD TRI NEQ 0 THEN                                34540050
                  P:=SPECIALMOVE(ET,P-(TRI DIV 8),P);                               34540100
                  GO PROPED;                                                        34540150
                  END ELSE                                                          34540200
               IF TRI LSS 8 THEN                                                    34540250
               GO PROPIT                                                            34540300
               ELSE                                                                 34540350
                  BEGIN                                                             34540400
                  IF RI-TRI GTR 4095 THEN                                           34540450
                     BEGIN                                                          34540500
                     P:=SPECIALMOVE(4095,(SST DIV 8)&                               34540550
```

```
                    (ENTIER(SST MOD 8))[CTF],P);                                    34540600
                    TRI:=TRI+4095;                                                  34540650
                    END;                                                            34540700
                P:=SPECIALMOVE(RI-TRI,(SST DIV 8)&                                  34540750
                (ENTIER(SST MOD 8))[CTF],P);                                        34540800
                END;                                                                34540850
             END;                                                                   34540900
PROPED:                                                                             34540950
          TRI:=RI;                                                                  34541000
          END;                                                                      34541050
       END;                                                                         34541100
    CHRS:=CHRS-RI;                                                                  34541150
    SCANR;                                                                          34541200
LOOK:                                                                               34541250
    IF SPECIALCHR=")" THEN GO FINISHEDSCANING;                                      34541300
    END;                                                                            34541350
FINISHEDSCANING:                                                                    34541400
IF NOT LITPAT THEN                                                                  34541450
IF CHRS NEQ 0 THEN                                                                  34541500
    BEGIN                                                                           34541550
    REVERSEMOVE(CR-CHRS,P,(PATBUFF+(CR DIV 8))&                                     34541600
    ENTIER(CR MOD 8)[CTF]);                                                         34541650
    IF RI:=CHRS DIV 8 NEQ 0 THEN                                                    34541700
       BEGIN                                                                        34541750
       CLEER(PATBUFF,RI-1);                                                         34541800
       IF TRI:=CHRS MOD 8 NEQ 0 THEN                                                34541850
       CHARACTERMOVE(TRI,PATBUFF,PATBUFF+RI);                                       34541900
       END                                                                          34541950
    ELSE                                                                            34542000
       BEGIN                                                                        34542050
       CLEAR(RI,1);                                                                 34542100
       CHARACTERMOVE(CHRS,COREADDR(RI),PATBUFF);                                    34542150
       END;                                                                         34542200
    END;                                                                            34542250
XIT: JUNK:=0; END OF PATTERNGENERATOR;                                              34542300
 $POP OMIT                                                                          34542350
%*******************************************************************************34545000
PROCEDURE GETPATTERN(P,B); VALUE P,B; INTEGER P,B;                                  34550000
    BEGIN                                                                           34560000
                                                                                    34560005
    COMMENT  PLACES PATTERN P IN BUFFER B;                                          34560010
                                                                                    34560015
    LABEL XIT; BOOLEAN CLR;                                                         34570000
    %                                                                               34570100
    STREAM PROCEDURE BUILDLABEL(D,MFID,FID,DATE,PRN);                               34570200
    VALUE D,MFID,FID,DATE,PRN;                                                      34570300
       BEGIN                                                                        34570400
       DI:=D;                                                                       34570500
       DS:=8 LIT " LABEL  ";                                                        34570600
       SI:=LOC MFID;                                                                34570700
       DS:=16 CHR;                  %MFID & FID                                     34570800
       DS:=3 LIT "001";             %REEL NUMBER                                    34570900
       SI:=SI+3; DS:=5 CHR;         %CREATION DATE                                  34571000
       DS:=2 LIT "01";              %CYCLE NUMBER                                   34571100
       DS:=5 LIT "99364";           %PURGE DATE                                     34571200
       DS:=LIT "0";                 %TAPEMARK END                                   34571300
       DS:=5 LIT "00001";           %BLOCK COUNT                                    34571400
       DS:=7 LIT "0000001";         %RECORD COUNT                                   34571500
       DS:=LIT "0";                 %NOT MEM DUMP TAPE                              34571600
       DS:=5 DEC;                   %PHYSICAL REEL NUMBER                           34571700
```

```
      DS:=LIT "0";              %UNBLOCKED                                    34571800
      DS:=5 LIT "00010";        %BUFFER LENGTH                                34571900
      DS:=5 LIT "00010";        %MAX REC LENGTH                               34572000
      DS:=3 LIT "000";                                                        34572100
      END;                                                                    34572200
%                                                                             34572300
IF CLR:=BOOLEAN(P.[1:1]) THEN P:=ABS(P);                                      34580000
IF NT1:=(NT2:=BUFFERS[B]).[FF] LSS EMPTY                                      34590000
   THEN                                                                       34600000
   IF NT1=P THEN %PATTERN ALREADY PRESENT                                     34610000
      GO XIT                        %SO GO ON                                34620000
   ELSE                                                                       34630000
   BEGIN %DELINK BUFFER FROM PRESENT PATTERN (NT1)                            34640000
   IF NT3:=(NT4:=BUFFERS[B]).[LB]=0 THEN    %HEAD OF LIST                     34650000
      PATTERNS[NT1].[LF]:=NT4.[LF] ELSE                                       34660000
      BUFFERS[NT3].[LF]:=NT4.[LF];                                            34670000
   BUFFERS[B].[LF]:=0;                                                        34680000
   IF NT5:=NT4.[LF]=0 THEN                  %TAIL OF LIST                     34690000
      PATTERNS[NT1].[LB]:=NT3 ELSE                                            34700000
      BUFFERS[NT5].[LB]:=0;                                                   34710000
   BUFFERS[B].[LB]:=0;                                                        34720000
   END;                                                                       34730000
IF P=EMPTY AND NOT CLR THEN GO XIT;                                           34740000
CLEER((NT3:=BUFFERS[B]).[CF],NT3.[SF]);                                       34742000
IF P=EMPTY THEN GO XIT;                                                       34743000
BUFFERS[B].[LB]:=PATTERNS[P].[LB];                                            34780000
PATTERNS[P].[LB]:=B;                                                          34790000
IF NT2:=PATTERNS[P].[LF]=0 THEN                                               34800000
   BEGIN                                                                      34810000
   PATTERNS[P].[LF]:=B;                                                       34820000
   IF NOT CLR THEN                                                            34830000
   BEGIN                                                                      34840000
      IF NT1:=PATTERNS[P] LSS 0 THEN                                          34840100
         BEGIN                                                                34840200
         BUILDLABEL(BUFFERS[B].[CF],HEADER[28],HEADER[29],                    34840300
            TAPEDATE,PRN);                                                    34840400
         GO XIT;                                                              34840500
         END;                                                                 34840600
      IF PP NEQ PP:=(NT1:=PATTERNS[P]).[23:10] THEN                           34841000
      READ(C@DEFILE[PP],30,PDESC[*]);                                         34850000
      FIRSTSCAN:=LASTSCAN:=COREADDR(PDESC)+NT1.[18:5];                        34870000
      COMPILING:=TRUE;                                                        34880000
      SCAN;                                                                   34890000
      IF PATTERNGENERATOR(NT1.[CF],BUFFERS[B].[CF]) THEN                      34900000
         BEGIN                                                                34910000
         IF CSWITCH=0 THEN WRITE(TWX[DBL]);                                   34911000
         WRITE(CFILE,PATERR,ERROR,S,A);                                       34920000
         GO EXIT;                                                             34930000
         END ELSE                                                             34940000
      COMPILING:=FALSE;                                                       34950000
      IF NT1 LSS 0 AND TAPEQUATED THEN                                        34950100
         VALUEMOVE(2,COREADDR(HEADER[28]),BUFFERS[B].[CF]+1);                 34950200
   END                                                                        34960000
   END                                                                        34970000
ELSE                                                                          34980000
   IF NOT CLR THEN                                                            34990000
   VALUEMOVE(PATTERNS[P].[SF],BUFFERS[NT2].[CF],BUFFERS[B].[CF]);             35000000
XIT: BUFFERS[B].[FF]:=P; END;                                        %140635001000
%*************************************************************************35002000
   STREAM PROCEDURE DISPLAYHEADING(BUFF,D,ID,XLATE);                 %140635002100
```

```
          VALUE BUFF,XLATE;                                                %140635002200
          BEGIN                                                            %140635002300
          LABEL L;                                                         %140635002400
          DI:=D;                                                           %140635002500
          BUFF(DS:=7 LIT "BUFFER ";SI:=ID;                                 %140635002600
               8(IF SC=" " THEN JUMP OUT;DS:=CHR);                         %140635002700
               DS:=10 LIT " CONTAINS(";                                    %140635002800
               JUMP OUT TO L);                                             %140635002900
          DS:=8 LIT "PATTERN ";SI:=ID;                                     %140635003000
          8(IF SC=" " THEN JUMP OUT;DS:=CHR);                              %140635003100
          DS:=4 LIT " IS(";                                                %140635003200
        L: SI:=LOC XLATE;SI:=SI+5;DS:=3 CHR;DS:=2 LIT "):";                %140635003300
          END;                                                             %140635003400
      %*************************************************************************35003500
      %*************************************************************************35004000
        PROCEDURE NEWDISPLAY(I); VALUE I; REAL I;                          %140635004100
          BEGIN                                                            %140635004200
          %                                                                %140635004300
          COMMENT  INTERPRETS TYPE 15 DISPLAY INSTRUCTIONS;                %140635004400
          %                                                                %140635004500
          DEFINE BI=BOOLEAN(I)#;                                           %140635004600
          %                                                                %140635004700
          STREAM PROCEDURE SVDIS(TYPE,NAME,BORP,VAR,OUTB);                 %140635004800
            VALUE TYPE,BORP,VAR,OUTB;                                      %140635004900
            BEGIN                                                          %140635005000
            LABEL WDC,IOD,RESLT,XIT,CHECK;                                 %140635005100
            %                                                              %140635005200
            DI:=OUTB;                                                      %140635005300
            CI:=CI+TYPE;                                                   %140635005400
              GO WDC;                                                      %140635005500
              GO IOD;                                                      %140635005600
              GO RESLT;                                                    %140635005700
        WDC:  DS:=11 LIT "WORD COUNT "; GO CHECK;                          %140635005800
        IOD:  DS:=11 LIT "I/O DESC   "; GO CHECK;                          %140635005900
        RESLT:DS:=11 LIT "RESULT DESC";                                    %140635006000
            %                                                              %140635006100
        CHECK:                                                             %140635006200
              BORP(DS:=12 LIT " FOR BUFFER ";                              %140635006300
                   SI:=NAME;                                               %140635006400
                   8(IF SC=" " THEN JUMP OUT;DS:=CHR);                     %140635006500
                   JUMP OUT);                                              %140635006700
            %                                                              %140635006800
            DS:=3 LIT " = ";                                               %140635006900
            %                                                              %140635007000
            SI:=LOC VAR;                                                   %140635007100
            TYPE(2(8(DS:=3 RESET;3(IF SB THEN DS:=SET ELSE DS:=RESET;      %140635007200
                                   SKIP SB));DS:=LIT " ");                 %140635007300
                 JUMP OUT TO XIT);                                         %140635007400
            DS:=8 DEC;                                                     %140635007500
            DI:=DI-8;                                                      %140635007600
            DS:=7 FILL;                                                    %140635007700
        XIT: END OF SVDIS;                                                 %140635007800
                                                                           %140635007900
            INTEGER BORP,SIZE,ADDR;                                        %140635008000
            LABEL BDISPLAY;                                                %140635008100
                                                                           %140635008200
            BORP:=I.[24:9];                                                %140635008300
            IF BI.[33:1] THEN WRITE(OUTFI[PAGE]);                          %140635008400
            IF NT1:=I.[39:3]=0 THEN                                        %140635008500
              IF BI.[34:1] THEN WRITE(OUTFI[DBL]) ELSE                     %140635008600
```

```
            IF BI.[33:1] THEN ELSE                                    %140635008700
            WRITE(OUTFI)                                              %140635008800
         ELSE                                                         %140635008900
         IF NT1=1 THEN                                                %140635009000
            BEGIN                                                     %140635009100
BDISPLAY:                                                             %140635009200
            IF BI.[35:1] THEN                                         %140635009300
               BEGIN                                                  %140635009400
               CLEAR(OUTBUFFER,WBUFF);                                %140635009500
               IF NOT TABLEPRESENT THEN                               %140635009600
                  BEGIN                                               %140635009700
                  READ(CODEFILE[HEADER[0]+1],HEADER[6],BNAMES[*]);    %140635009800
                  READ(CODEFILE);                                     %140635009900
                  TRANSFERIN(HEADER[2],30,CODEFILE,PNAMES[*]);        %140635010000
                  TABLEPRESENT:=TRUE;                                 %140635010100
                  END;                                                %140635010200
               IF NT1=1 THEN                                          %140635010300
                  DISPLAYHEADING(1,OUTBUFFER,BNAMES[BORP],            %140635010400
                     IF BCL THEN "BCL" ELSE "INT")                    %140635010500
               ELSE                                                   %140635010600
                  DISPLAYHEADING(0,OUTBUFFER,PNAMES[BORP],            %140635010700
                     IF BCL THEN "BCL" ELSE "INT");                   %140635010800
               WRITE(OUTFI[DBL],8,OUTBUFFER[*]);                      %140635010900
               END;                                                   %140635011000
            ADDR:=BUFFERS[NT2:=I.[24:9]].[CF];                        %140635011100
            SIZE:=IF NT1=1 THEN BUFFERS[NT2].[SF] ELSE                %140635011200
                              PATTERNS[BORP].[SF];                    %140635011300
            MOVEANDWRITE(BI.[35:1],                                   %140635011400
                        NT5:=IF NT3:=I.[1:2]=0 THEN SIZE ELSE         %140635011500
                              IF I < 0 THEN                           %140635011600
                              IF NT4:=I.[6:2]=0 THEN I.[SF] ELSE      %140635011700
                              IF NT4=1 THEN MIN(ABS(TALLY),SIZE) ELSE %140635011800
                              MIN(BV[NROFBVAR×(NT2-1)],SIZE) ELSE     %140635011900
                              IF NT4:=I.[6:2]=0 THEN SIZE-I.[SF]+1 ELSE    35012000
                              IF NT4=1 THEN SIZE-MIN(ABS(TALLY),SIZE)+1    35012100
                              ELSE MIN(BV[NROFBVAR×(NT2-1)],SIZE),    %140635012200
                        BI.[34:1],                                    %140635012300
                        OUTFI,                                        %140635012400
                        ADDR+(IF BI.[2:1] THEN (SIZE-NT5) ELSE 0));   %140635012500
            IF BI.[35:1] THEN WRITE(OUTFI[DBL]);                      %140635012600
            END                                                       %140635012700
         ELSE                                                         %140635012800
         IF NT1=2 THEN                                                %140635012900
            BEGIN                                                     %140635013000
            IF NT2:=PATTERNS[BORP].[LF] NEQ 0 THEN I.[24:9]:=NT2      %140635013100
            ELSE BEGIN                                                %140635013200
                     GETPATTERN(BORP,1);                              %140635013300
                     I.[24:9]:=1;                                     %140635013400
                 END;                                                 %140635013500
            GO BDISPLAY;                                              %140635013600
            END                                                       %140635013700
         ELSE                                                         %140635013800
         IF NT1=3 THEN                                                %140635013900
            IF BI.[34:1] THEN                                         %140635014000
               WRITE(OUTFI[DBL],DTALLY,TLLY)                          %140635014100
            ELSE                                                      %140635014200
               WRITE(OUTFI,DTALLY,TLLY)                               %140635014300
         ELSE                                                         %140635014400
            BEGIN                                                     %140635014500
            CLEAR(OUTBUFFER,WBUFF);                                   %140635014600
```

```
            SVDIS(NT4:=I.[36:3],BNAMES[BORP],                          %140635014700
                  BORP,IF BORP NEQ 0 THEN BV[NROFBVAR*(BORP-1)+NT4] ELSE   35014800
                       IF NT4=0 THEN WRDCOUNT ELSE                     %140635014900
                       IF NT4=1 THEN LIOD ELSE SAVER,                  %140635015000
                  OUTBUFFER);                                          %140635015100
            IF BI.[34:1] THEN WRITE(OUTFI[DBL],8,OUTBUFFER[*]) ELSE    %140635015200
                              WRITE(OUTFI,8,OUTBUFFER[*]);             %140635015300
            END;                                                       %140635015400
          END;                                                         %140635015500
      %*****************************************************************35021000
          PROCEDURE DISPLAYIT(INSTRUCTION);                              35021100
            VALUE INSTRUCTION; REAL INSTRUCTION;                         35021200
            BEGIN                                                        35021300
                                                                         35021305
            COMMENT  INTERPRETS "DISPLAY" INSTRUCTIONS;                  35021310
                                                                         35021315
            INTEGER BORP,SIZE;                                           35021400
            REAL ADDR;                                                   35021450
          %                                                              35021517
            IF NT1:=INSTRUCTION.[36:6] GTR 1 THEN                        35021519
              IF PAGE THEN                                               35021520
                WRITE(OUTFI[PAGE])                                       35021530
              ELSE                                                       35021540
                WRITE(OUTFI[DBL],STAR);                                  35021550
            IF BORP:=INSTRUCTION.[FF]=EMPTY THEN                         35021600
            BEGIN                                                        35021700
              IF BL(INSTRUCTION.[2:1]) THEN                              35021710
                IF BL(NT1) THEN                                          35021720
                  WRITE(OUTFI[DBL],DTALLY,TLLY)                          35021730
                ELSE                                                     35021740
                  WRITE(OUTFI,DTALLY,TLLY)                               35021750
              ELSE                                                       35021760
              IF BL(NT1) THEN                                            35022400
                WRITE(OUTFI[DBL])                                        35022500
              ELSE                                                       35022600
                WRITE(OUTFI);                                            35022700
            END                                                          35022800
            ELSE                                                         35022900
            BEGIN                                                        35023000
              CLEAR(OUTBUFFER,WBUFF);                                    35023400
              JUNKB:=INSTRUCTION LSS 0;                                  35023500
              IF INSTRUCTION.[SCF] LSS 63 THEN                           35023600
              BEGIN                                                      35023700
                IF NOT TABLEPRESENT THEN                                 35023710
                  BEGIN                                                  35023720
                  READ(CODEFILE[HEADER[0]+1],                            35023730
                       HEADER[6],BNAMES[*]);                             35023740
                  READ(CODEFILE);                                        35023750
                  TRANSFERIN(HEADER[2],30,                               35023760
                       CODEFILE,PNAMES[*]);                              35023770
                  TABLEPRESENT:=TRUE;                                    35023780
                  END;                                                   35023790
                IF JUNKB THEN                                            35023800
                  DISPLAYHEADING(1,OUTBUFFER,BNAMES[BORP],               35023900
                       IF BCL THEN "BCL" ELSE "INT")                     35024000
                ELSE                                                     35024100
                  DISPLAYHEADING(0,OUTBUFFER,PNAMES[BORP],               35024200
                       IF BCL THEN "BCL" ELSE "INT");                    35024300
                WRITE(OUTFI[DBL],WBUFF,OUTBUFFER[*]);                    35024400
              END;                                                       35024500
```

```
ADDR:=IF JUNKB THEN BUFFERS[BORP] ELSE                                  35024600
     IF NT2:=PATTERNS[BORP].[LF]=0 THEN                                 35024700
          BUFFERS[1] ELSE                                               35024800
          BUFFERS[NT2];                                                 35024900
SIZE:=IF JUNKB THEN ADDR.[SF] ELSE                                      35024910
     PATTERNS[BORP].[SF];                                               35024920
IF NT2=0 AND NOT JUNKB THEN                                             35025000
GETPATTERN(BORP,1);                                                     35025100
MOVEANDWRITE(NT3:=INSTRUCTION.[SCF] < 64,                 %140635025200
          NT5:=IF NT4:=INSTRUCTION.[SF]=0 THEN                          35025300
               SIZE                                                     35025400
          ELSE                                                          35025500
          IF NT4=1023 THEN                                              35025600
               IF BL(INSTRUCTION.[3:5]) THEN                            35025700
                 IF BL(INSTRUCTION.[2:1]) THEN                          35025710
                      SIZE-((NT4:=MIN(ABS(                              35025720
                      WRDCOUNT),SIZE))-1)                 %140635025730
                 ELSE                                                   35025740
                 (NT4:=MIN(ABS(WRDCOUNT),SIZE))                         35025800
               ELSE                                                     35025900
                 IF BL(INSTRUCTION.[2:1]) THEN                          35025910
                      SIZE-((NT4:=MIN(ABS(                              35025920
                      TALLY),SIZE))-1)                                  35025930
                 ELSE                                                   35025940
                 (NT4:=MIN(ABS(TALLY),SIZE))                            35026000
          ELSE                                                          35026100
            IF BL(INSTRUCTION.[2:1]) THEN                               35026110
               SIZE-(NT4-1) ELSE                                        35026120
            NT4,                                                        35026200
     BOOLEAN(NT3),OUTFI,                                                35026300
     ADDR.[CF]+(IF NT4=0 OR NOT BL(INSTRUCTION.                         35026400
          [2:1]) THEN 0 ELSE                                            35026500
          (NT4-1)));                                                    35026600
          IF INSTRUCTION.[SCF] LSS 64 THEN                              35026650
          WRITE(OUTFI[OBL]);                                            35026700
     END;                                                               35026800
     END;                                                               35026900
%***************************************************************************35030000
PROCEDURE COMPARERROR(INST,B);                                  %150135030100
     VALUE INST,B;                                              %150135030200
     REAL INST; INTEGER B;                                      %150135030300
                                                                        35030400
     BEGIN                                                              35030500
                                                                        35030600
     COMMENT  CALLED WHEN AN ERROR OCCURS DURING                        35030700
              INTERPRETATION OF A COMPARE INSTRUCTION.                  35030800
              JUNKB IS TRUE IF A PATTERN IS BEING                       35030900
              COMPARED ;                                                35031000
                                                                        35031100
     FORMAT ERRF("COMPARE ERROR"),                                      35031200
            ULF ("------- -----"),                                     35031300
            DIFF(I4," CHRS (IN ",I4," WDS) ARE DIFFERENT ",             35031400
                 "(FIRST IN WRD ",I4,")");                              35031500
     LABEL XIT;                                                         35031550
     %                                                                  35031600
     IF INST LSS 0 THEN A:=A+1;                                         35031700
     IF IGNORERRORS OR BL(INST.[2:1]) THEN GO XIT;                      35031800
     IF NOISEONERROR OR BL(INST.[3:1]) THEN                 %140335031900
     BEGIN                                                  %140335031910
          WRITE(OUTFI[NO],NOISER);                          %140335031920
```

```
            WRITE(OUTFI[DBL]);                                          %140335031930
            GO XIT;                                                     %140335031940
        END;                                                            %140335031950
        %                                                               %140335031960
        WRITE(OUTFI, ERRF);                                                  35032000
        WRITE(OUTFI[DBL], ULF);                                              35032100
        WRITE(OUTFI[DBL]);                                                   35032200
        %                                                                    35032300
        DISPLAYIT(2&B[CTF]&REAL(NOT JUNKB)[1:47:1]);                         35032400
        DISPLAYIT("2&INST[24:33:9]);                                         35032500
        WRITE(OUTFI,DIFF,DIFFL);                                    %150135032600
        %                                                                    35032700
        IF PAGE THEN WRITE(OUTFI[PAGE]) ELSE                                 35032800
        BEGIN WRITE(OUTFI[DBL]); WRITE(OUTFI[DBL]); END;                     35032900
    XIT: END;                                                                35033000
%*************************************************************************35033100
  PROCEDURE STARTAPEIO(IOD,RESULT); VALUE IOD; REAL IOD,RESULT;              35040000
        BEGIN                                                                35050000
        RESULT:=0;                                                           35060000
        IF (NT1:=(TIME(1)-IOFT) DIV 60) LSS DELAY THEN                       35060100
            WHENN(DELAY-NT1);                                                35060200
        IOREQUEST("(IOD)&5[25:40:8],IOD,COREADDR(RESULT)&                    35070000
            UNIT[12:42:6]&1[2:47:1]);                                        35080000
        TRANS:=IF BOOLEAN(IOD.[22:1]) THEN                                   35090000
                  IF BOOLEAN(IOD.[18:1]) THEN 0                              35100000
                  ELSE TRANS-1                                               35110000
               ELSE TRANS+1;                                                 35120000
        END;                                                                 35130000
%*************************************************************************35140000
    PROCEDURE TAPERROR(IOD,RESULT,MASK,KEY);                                 35150000
        VALUE IOD,MASK,KEY;                                                  35160000
      REAL IOD,RESULT,MASK; INTEGER KEY;                                     35170000
        FORWARD;                                                             35180000
%*************************************************************************35190000
    REAL PROCEDURE TAPEPARITYRETRY(R,OIOD); VALUE R,OIOD;                    35200000
        REAL R,OIOD;                                                         35210000
        FORWARD;                                                             35220000
%*************************************************************************35230000
    PROCEDURE IOFINISH(IOD,RESULT,MASK,KEY);VALUE IOD,MASK,KEY;              35240000
        REAL IOD,RESULT,MASK; INTEGER KEY;                                   35250000
        BEGIN                                                                35260000
        INTEGER AD;                                                          35270000
        BOOLEAN STREAM PROCEDURE COMP(A,B,SZDIV64,SZ);                       35270100
            VALUE A,B,SZDIV64,SZ;                                            35270200
            BEGIN                                                            35270300
            LABEL ERR,XIT;                                                   35270400
            SI:=A;DI:=B;                                                     35270500
            SZDIV64(16(IF 32 SC NEQ DC THEN JUMP OUT 2 TO ERR));             35270600
            SZ(IF 8 SC NEQ DC THEN JUMP OUT TO ERR);                         35270700
            GO XIT;                                                          35270800
        ERR: TALLY:=1;COMP:=TALLY;                                           35270900
        XIT: END;                                                            35271000
        LABEL XIT,E,E1;                                                      35280000
        INTEGER STREAM PROCEDURE SIZECHECK(A); VALUE A;                      35280100
            BEGIN                                                            35280200
            SI:=A; IF SC="←" THEN                                            35280300
                    BEGIN SI:=SI+1; IF SC NEQ "←" THEN TALLY:=1; END;        35280400
            SIZECHECK:=TALLY;                                                35280500
            END;                                                             35280600
    %                                                                        35280700
```

```
SIZERR:=FALSE;                                                    35280800
AD:=COREADDR(RESULT);                                             35290000
WAIT(AD,IOMASK);                                                  35300000
IOFT:=TIME(1);                                                    35300100
IF KEY=1 OR KEY=3 THEN                                            35301000
BEGIN                                                             35301100
     WRDCOUNT:=AD:=ABS(IOD.[CF]-RESULT.[CF]);          %140635301200
     AD:=MIN(AD,IOD.[SF]+1);                                      35301300
     IF IOD.[21:2]=0 AND KEY NEQ 3 THEN                           35301400
     WRDCOUNT:=WRDCOUNT-SIZECHECK(IOD.[CF]+AD-1);      %140635301500
END;                                                              %140635301600
IF MASK=-3"37700000" THEN GO E1;                                  35310000
IF RESULT.[25:8]=MASK.[25:8] THEN                                 35320000
  IF NOT BL(MASK.[1:1]) THEN     %NOT RETRY I/O                   35330000
     IF KEY=1 THEN                                                35340000
        IF P:=IOD1.[FF] LSS EMPTY THEN                            35350000
          BEGIN                                                   35360000
               IF COMP(ENTIER(IOD.[CF]-(                          35380000
                  (IOD.[SF]-1)×IOD.[22:1])),                      35390000
                  DBUFF,IOD.[8:4],IOD.[SF])                       35400000
                    OR SIZERR:=WRDCOUNT NEQ IOD.[SF] THEN%140635401000
                    GO E                                          35410000
               ELSE GO XIT                                        35420000
          END ELSE IF SIZERR:=(WRDCOUNT NEQ IOD.[SF] AND %140635430000
               IOD.[SF] NEQ 1020) THEN GO E                       35431000
        ELSE GO XIT                                               35440000
     ELSE                                                         35450000
     IF KEY=3 THEN                                                35450020
     IF NOT (SIZERR:=(IOD1.[SF] NEQ WRDCOUNT AND       %140635450100
          IOD1.[SF] NEQ 0)) THEN GO XIT                           35450200
          ELSE ELSE GO XIT;                                       35450300
E:                                                                35460000
     TAPERROR(ICD,RESULT,MASK,KEY);                               35470000
     IF RESULT GTR 0 THEN                                         35480000
E1:                                                               35481000
     IF IOD LSS 0 THEN                                            35490000
     BEGIN                                                        35500000
          A:=A+1;                                                 35510000
          GO XIT;                                                 35520000
     END;                                                         35530000
XIT: END;                                                         35540000
%*****************************************************************35550000
     PROCEDURE READERROR(IOD,SZ); VALUE IOD,SZ; REAL IOD; INTEGER SZ; 35550100
     BEGIN                                                        35550200
     COMMENT HANDLES PATTERN DISPLAYS ON READ ERRORS;             35550205
     FORMAT                                                       35550300
          WTF(I4," WORDS (",A3,") READ WERE:"),                   35550400
          OKWTE(I4," WORDS (",A3,") READ--SAME AS EXPECTED"),     35550500
          BWTF(I4," WORDS (",A3,") READ--NOT AS EXPECTED--WERE:"), 35550600
          DIFF(I5," CHRS(IN",I5," WDS) DIFFER FROM EXPECTED ",    35550700
               "RECORD (FIRST IN WRD",I5,")"),                    35550800
          SIZERRORF(X24,"SIZE ERROR (",I4," WORDS READ)"),        35550810
          NOTRANSF("NO DATA TRANSFERED ON READ");                 35550820
     LIST WLIST(SZ,IF BCL THEN "BCL" ELSE "INT");                 35550900
%                                                                 35551000
     IF SZ NEQ IOD.[SF] AND IOD.[SF] NEQ 1020 THEN                35551100
          WRITE(OUTFI[DBL],SIZERRORF,SZ);                         35551200
     WRITE(OUTFI[DBL]);                                           35551300
     IF SZ:=MIN(SZ,IOD.[SF])=0 THEN WRITE(OUTFI[DBL],NOTRANSF) ELSE35551400
     BEGIN                                                        35551500
```

```
                IF IOD1.[FF] NEQ EMPTY THEN                                          35551600
                     IF COMPAREDATA:=BIGCOMPARE(SZ&IOD[1:22:1],                      35551700
                          IOD.[CF],DBUFF+(SZ-1)×IOD.[22:1])          %150135551800
                     THEN                                                            35551900
                     BEGIN                                                           35552000
                          WRITE(OUTFI[DBL],BWTF,WLIST);                              35552100
                          WRITE(OUTFI[DBL]);                                         35552200
                          MOVEANDWRITE(TRUE,SZ,FALSE,OUTFI,IOD.[CF]-                 35552300
                               (SZ-1)×IOD.[22:1]);                                   35552400
                          WRITE (OUTFI[DBL] );                                       35552450
                          WRITE(OUTFI[DBL],DIFF,DIFFL);              %150135552500
                          WRITE(OUTFI[DBL]);                                         35552600
                     END ELSE                                                        35552700
                     BEGIN                                                           35552800
                          WRITE(OUTFI[DBL],OKWTF,WLIST);                             35552900
                          WRITE(OUTFI[DBL]);                                         35553000
                     END                                                             35553100
                ELSE                                                                 35553200
                BEGIN                                                                35553300
                     WRITE(OUTFI[DBL],WTF,WLIST);                                    35553400
                     WRITE(OUTFI[DBL]);                                              35553500
                     MOVEANDWRITE(TRUE,SZ,FALSE,OUTFI,                               35553600
                          IOD.[CF]-(SZ-1)×IOD.[22:1]);                               35553700
                     WRITE(OUTFI[DBL]);                                              35553800
                END;                                                                 35553900
           END;                                                                      35554000
           END;                                                                      35554100
      %*****************************************************************************35554500
           PROCEDURE TAPERROR(IOD,RESULT,MASK,KEY);                                  35560000
                VALUE IOD,MASK,KEY;                                                  35570000
                REAL IOD,RESULT,MASK; INTEGER KEY;                                   35580000
                BEGIN                                                                35590000
                                                                                     35590005
                COMMENT                                                              35590010
                                                                                     35590015
                     TAPERROR DOES THE ACTUAL ERROR ANALYSIS WHEN                    35590020
                     A TAPE ERROR OCCURS.  IT IS ALSO USED AS A                      35590025
                     RESULT DESC ANALYSIS ROUTINE WHILE TAPEPARITY                   35590030
                     RETRY IS RUNNING (MASK.[1:1]=1).  THE                           35590035
                     STACK IS AS FOLLOWS WHEN A RETRY I/O IS BEING                   35590040
                     ANALYZED BY TAPERROR:                                           35590045
                                                                                     35590050
                     TAPERROR     (ANALYZING RETRY I/O)                              35590055
                     TAPEPARITYRETRY                                                 35590060
                     TAPERROR     (ANALYZING ORIGINAL FAILURE)                       35590065
                                                                                     35590070
                     ;                                                               35590075
           DEFINE R=RESULT#,                                                         35600000
                  RL=REAL#;                                                          35610000
           INTEGER E,T;                                                              35620000
           INTEGER SAVEDELAY;                                                        35620100
           BOOLEAN RETRYTOG,PGE,ABR,RETRYING,MAKELOG;                                35630000
           OWN INTEGER RTYCOUNT;                                                     35640000
           LABEL SIX,WD,XIT,SPOUT,TAPEPARITY,IODS,PAGECHECK;                         35650000
           FORMAT                                                                    35660000
                ULF(50("-")),      SULF(*("-")," ",*("-")),                         35670000
                NOTRANSF("NO DATA TRANSFERED ON READ"),                              35680000
                BLNKTPEF(X24,"BLANK TAPE ON WRITE"),                                 35690000
                ERRF(A*," FAILURE"),                                                 35700000
                NOERRF(X24,"NO ERROR BITS"),                                         35710000
```

```
BLNKTPERF(X24,"BLANK TAPE ON READ"),                                    35720000
D20F(X24,"PARITY - D20"),                                               35730000
D20AEF(X24,"PARITY - D20 (AS EXPECTED)"),                               35740000
RESF(X8,"RESULT DESC. = "),                                             35750000
IODF(X8,"I/O DESC.    = "),                                             35760000
RETYF("ANALYSIS I/O #",I4," ",A5),                                      35770000
ORIGF("ANALYSIS I/O #0 (ORIGINAL I/O)"),                                35780000
BLKF("*ORIGINAL I/O ON BLOCK #",I5," WAS:"),                            35790000
ORIGINALF("*ORIGINAL I/O"),                                             35800000
BOTAEF(X24,"BOT (AS EXPECTED)"),                                        35810000
BOTF(X24,"BOT"),                                                        35820000
EOTF(X24,"EOT"),                                                        35830000
TAPEMARKEXPF("TAPE MARK RECORD EXPECTED"),                              35831000
EOTAEF(X24,"EOT (AS EXPECTED)"),                                        35840000
EOFF(X24,"EOF - D21"),                                                  35850000
EOFAEF(X24,"EOF - D21 (AS EXPECTED)"),                                  35860000
EXPF(I4," WORDS EXPECTED WERE(",A3,")-"),                               35880000
OWF(I4," WORDS WRITTEN WERE (",A3,")!"),                                35880100
TMWF("TAPE MARK RECORD WRITTEN"),                                       35880200
D19F(X24,"MEMORY PARITY - D19"),                                        35890000
WRTLOCKF(X24,A3,"-WRITE LOCK"),                                         35900000
D17F(X24,"MEMORY PARITY - D17"),                                        35910000
SUCCESSF("COMMENT:",/,X9,                                               35920000
        "-RETRY WAS SUCCESSFUL",/,X9,                                   35921000
        "-RETRY ROUTINE EXITED"),                                       35922000
IRRECOVRF("COMMENT:",/,X9                                               35923000
        "-FAILURE WAS IRRECOVERABLE",/,X9,                              35924000
        "-RETRY ROUTINE EXITED"),                                       35925000
BLNKTPEIRREC("COMMENT:",/,X9                                            35926000
        "-BLANK TAPE",/,X9                                              35927000
        "-RETRY ROUTINE EXITED"),                                       35928000
SPACERR(X24,"SIZE ERROR(",I4," WORDS SPACED OVER)"),                    35928100
NOTRY("COMMENT:",/,X9,                                                  35929000
      "-NO RETRYS ATTEMPTED ON THIS TYPE I/O ",                         35930000
          "AND FAILURE",/,X9,                                           35931000
      "-ERROR ROUTINE EXITED"),                                         35932000
STRANGE("COMMENT:",/,X9                                                 35950000
        "-RECORD WAS INTENTIONALLY READ IN ",                           35951000
        "INCORRECT PARITY",/,X9,                                        35952000
        "-NO RETRIES WERE ATTEMPTED",/,X9,                              35953000
        "-ERROR ROUTINE EXITED"),                                       35954000
 ODD("COMMENT: ODD SITUATION",/,                                        35960000
     "       -COULD NOT READ RECORD WITH ORIGINAL",                     35970000
       " I/O BUT COULD WITH THIS ONE",/,                                35980000
     "       -RETRY ROUTINE WAS EXITED"),                               35990000
BAD("COMMENT: BAD SITUATION",/,                                         36000000
     "       -DATA READ WAS INCORRECT",/,                               36010000
     "       -SINCE HARDWARE DETECTED NO ",                             36020000
     "ERROR CONDITIONS, RETRY ROUTINE WAS EXITED"),                     36030000
INVADDRF(X24,"INVALID ADDR - D22");                          %140136040000
STREAM PROCEDURE IODAN(OP,DIRECT,TOG,MODE,SIZE,A,B);                    36050000
VALUE OP,DIRECT,TOG,MODE,SIZE;                                          36060000
BEGIN                                                                   36070000
LOCAL T1;                                                               36080000
LABEL L;                                                                36090000
SI:=LOC OP; DI:=LOC T1; DI:=DI+7; DS:=CHR;                              36100000
DI:=8;                                                                  36110000
SI:=SI+7; SI:=SI-T1; DS:=T1 CHR; DS:=LIT " ";                           36120000
SI:=LOC DIRECT; SI:=SI+7;                                               36130000
IF SC="1" THEN DS:=7 LIT "FORWARD" ELSE                                 36140000
```

```
            IF SC="2" THEN DS:=7 LIT "REVERSE";                          36150000
            TOG(DS:=LIT "("; SI:=LOC MODE; SI:=SI+7;                     36160000
                IF SC="2" THEN DS:=6 LIT "BINARY" ELSE                   36170000
                IF SC="1" THEN DS:=5 LIT "ALPHA";                        36180000
                SI:=LOC SIZE; TALLY:=8;                                  36190000
                B(IF SC="0" THEN                                         36200000
                  BEGIN TALLY:=TALLY+63; SI:=SI+1 END ELSE               36210000
                  JUMP OUT);                                             36220000
                T1:=TALLY;                                               36230000
                T1(DS:=LIT ","; DS:=T1 CHR; DS:=6 LIT " WORDS";          36240000
                  JUMP OUT);                                             36250000
            DS:=LIT ")");                                                36260000
            DS:=6 LIT " WITH ";                                          36270000
            SI:=A;                                                       36280000
        L:  IF SC=" " THEN BEGIN SI:=SI+1; IF SC NEQ " " THEN            36290000
            BEGIN DS:=LIT " "; DS:=CHR; GO L, END END ELSE               36300000
            BEGIN DS:=CHR; GO L; END;                                    36310000
            DS:=9 LIT " EXPECTED";                                       36320000
    END;                                                                 36330000
    BOOLEAN STREAM PROCEDURE TPEMRKCHECK(A); VALUE A;                    36330100
            BEGIN                                                        36330200
            LABEL L;                                                     36330250
            SI:=LOC A;                                                   36330300
            IF SC NEQ "+" THEN                                           36330400
                 BEGIN                                                   36330500
                 SI:=A;                                                  36330550
                      IF SC="2" THEN                                     36330600
                      BEGIN                                              36330700
                      SI:=SI+1;                                          36330750
                      IF SC="+" THEN                                     36330800
                           BEGIN                                         36330900
                           TALLY:=1;                                     36331000
                           TPEMRKCHECK:=TALLY;                           36331100
                           END;                                          36331200
                      END;                                               36331300
                 END                                                     36331400
            ELSE                                                         36331500
                 BEGIN                                                   36331600
                      SI:=A;                                             36331700
        L:            IF SC="+" THEN TPEMRKCHECK:=SI ELSE                36331800
                      BEGIN                                              36331900
                      SI:=SI+1;                                          36332000
                      GO L;                                              36332050
                      END;                                               36332100
                 END;                                                    36332200
            END;                                                         36332300
    PROCEDURE IODANALYZ(KEY,JUNK,IOD,MASK);                              36340000
         VALUE KEY,JUNK,IOD,MASK;                                        36350000
         INTEGER KEY; REAL JUNK,IOD,MASK;                                36360000
         BEGIN                                                           36370000
         DEFINE BUFFS=JUNKBUFFER[0],OUTBUFFER#;                          36380000
         FORMAT BOTF("BOT"),                                             36390000
                EOTF("EOT"),                                             36400000
                EOFF("EOF - D21"),                                       36410000
                D20F("PARITY - D20"),                                    36420000
                NOERRF("NO ERROR BITS");                                 36430000
         CLEAR(OUTBUFFER,WBUFF);                                         36440000
         IF BL(MASK.[27:1]) THEN                                         36460000
              IF BL(MASK.[29:1]) THEN                                    36470000
                   IF BL(IOD.[22:1]) THEN                                36480000
```

```
                    WRITE(JUNKBUFFER[*],BOTF)                                36490000
                    ELSE WRITE(JUNKBUFFER[*],EOTF)                           36500000
               ELSE WRITE(JUNKBUFFER[*],EOFF)                                36510000
          ELSE                                                               36520000
               IF BL(MASK,[28:1]) THEN                                       36530000
                    WRITE(JUNKBUFFER[*],D20F)                                36540000
               ELSE                                                          36550000
                    WRITE(JUNKBUFFER[*],NOERRF);                             36560000
               CASE KEY-1 OF                                                 36570000
               BEGIN                                                         36580000
                    IODANA(JUNK,1+IOD.[22:1],1,1+IOD.[21:1],                 36590000
                         DECMAL(IOD.[SF]),BUFFS);                            36600000
                    IODANA(JUNK,0,1,1+IOD.[21:1],DECMAL(IOD.[SF]),           36610000
                         BUFFS);                                             36620000
                    IODANA(JUNK,1+IOD.[22:1],1,1+IOD.[21:1],                 36630000
                         DECMAL(IOD1.[SF]),                                  36631000
                         BUFFS);                                             36640000
                    IODANA(JUNK,0,1,1+IOD.[21:1],DECMAL(IOD.[SF]),           36650000
                         BUFFS);                                             36660000
                    IODANA(JUNK,0,0,0,0,BUFFS);                              36670000
               END;                                                          36680000
               WRITE(OUTFI,WBUFF,OUTBUFFER[*]);                              36690000
          END;                                                               36700000
     DEFINE IODANALYZER=IODANALYZ(KEY,JUNK,IOD,MASK)#;                       36710000
%CODE STARTS HERE.....                                                       36710100
     SAVEDELAY:=DELAY;                                                       36710200
     DELAY:=0;                                                               36710300
                                                                             36710400
     COMMENT  DON-T DELAY DURING RETRYS;                                     36710500
                                                                             36710600
     RETRYING:= BL(MASK,[1:1]);                                              36711000
%CHECK FOR EOT AND BOT                                                       36720000
     IF BL(R,[2:1]) AND BL(R,[29:1]) THEN                                    36730000
     BEGIN                                                                   36740000
          MOD3ICS:=TRUE;                                                     36750000
          IF R.[13:2] NEQ 0 THEN                                             36760000
          BEGIN                                                              36770000
          R.[27:1]:=1;                                                       36780000
          IF RL((NOT BL(MASK.[25:8])) AND (BL(R.[25:8])))                    36790000
               =0 THEN                                                       36800000
          IF NOT RETRYING THEN                                               36810000
          BEGIN R:=-R; GO XIT; END;                                          36820000
          R.[27:1]:=0;                                                       36830000
          END;                                                               36840000
     END;                                                                    36850000
%                                                                            36851000
     ABR:=ABREV OR IOD1 LSS 0;                                               36852000
     IF NOT PGE:=(IOD GTR 0 AND NOT RETRYING) THEN IOD:=                     36860000
          ABS(IOD);                                                          36870000
     FILL JUNKBUFFER[*] WITH                                                 36880000
          "4000READ",                                                        36890000
          "500WRITE",                                                        36900000
          "500SPACE",                                                        36910000
          "500ERASE",                                                        36920000
          "60REWIND";                                                        36930000
     IF RETRYING THEN                                                        36950000
     BEGIN                                                                   36960000
          JUNK:=JUNKBUFFER[KEY-1];                                           36970000
          WRITE(OUTFI[DBL]); WRITE(OUTFI);                                   36980000
          WRITE(OUTFI[DBL],RETYF,RTYCOUNT:=RTYCOUNT+1,                       36990000
```

```
            IF R.[25:8]=MASK.[25:8] OR KEY=3 THEN "      " ELSE      37000000
            "(BAD)");                                                37010000
      END                                                            37020000
      ELSE                                                           37030000
      BEGIN                                                          37040000
            COMPAREDATA:=FALSE;                                      37041000
            RTYCOUNT:=0;                                             37050000
            ERROR:=ERROR+1; ERRORS:=ERRORS+1;                        37060000
            IF CONF THEN                                             37060100
            IF REAL(BL(R.[25:8]) AND NOT BL(MASK.[25:8]))#0 THEN     37060200
            BEGIN                                                    37060300
                  LOGBUFFER[1]:= LOGBUFFER[1]& 0[2:2:1]& 2[9:45:3];  37060400
                  LOGBUFFER[2]:= TRANS;                              37060500
                  LOGBUFFER[4]:= IOD;                                37060600
                  LOGBUFFER[5]:= RESULT;                             37060700
                  LOGBUFFER[9]:= 0;                                  37060800
                  LOGBUFFER[10]:= 16;                                37060900
                  MAKELOG:= TRUE;                                    37061000
            END;                                                     37062000
            IF IGNORERRORS OR BL(IOD.[2:1]) THEN GO XIT;             37063000
            IF NOISEONERROR OR BL(IOD1.[2:1]) THEN          %140337064000
            BEGIN                                           %140337064100
                  WRITE(OUTFI[NO],NOISER);                  %140337064200
                  WRITE(OUTFI[DBL]);                        %140337064300
                  GO XIT;                                   %140337064400
            END;                                            %140337064500
            WRITE(OUTFI,ERRF,(JUNK:=JUNKBUFFER[KEY-1]).[1:5],        37070000
                  JUNK);                                             37080000
            WRITE(OUTFI,BULF,JUNK.[1:5],7);                          37090000
            WRITE(OUTFI[DBL]);                                       37100000
            WRITE(OUTFI[DBL],BLKF,TRANS+IOD.[22:1]);                 37110000
            IODANALYZER;                                             37120000
            WRITE(OUTFI[DBL]);                                       37130000
            IF KEY=1 THEN                                            37140000
            IF P:=IOD1.[FF] NEQ EMPTY THEN                           37150000
            BEGIN                                                    37160000
                  GETPATTERN(P,1);                                   37170000
                  WRITE(OUTFI[DBL],EXPF,E:=IOD.[SF],                 37160000
                        IF BCL THEN "BCL" ELSE "INT");               37190000
                  WRITE(OUTFI[DBL]);                                 37200000
                  MOVEANDWRITE(TRUE,E,FALSE,OUTFI,DBUFF);            37210000
                  WRITE(OUTFI[DBL]);                                 37220000
            END ELSE                                                 37230000
            IF BL(MASK.[27:1]) THEN                                  37230010
            BEGIN                                                    37230020
                  WRITE(OUTFI[DBL],TAPEMARKEXPF);                    37230030
                  WRITE(OUTFI[DBL]);                                 37230040
            END ELSE                                                 37230050
            ELSE                                                     37230060
            IF KEY=2 THEN %WRITE                                     37230070
            BEGIN                                                    37230080
                  IF BL(IOD.[21:1]) OR MOD3IOS THEN %BINARY          37230090
                  BEGIN                                              37230100
                        E:=IOD.[SF];                                 37230110
      WD:                                                            37230120
                        WRITE(OUTFI[DBL],DWF,E,IF BCL THEN "BCL"     37230130
                              ELSE "INT");                           37230140
                        WRITE(OUTFI[DBL]);                           37230150
                        MOVEANDWRITE(TRUE,E,FALSE,OUTFI,IOD.[CF]);   37230160
                        WRITE(OUTFI[DBL]);                           37230170
```

```
                    END ELSE                                                    37230180
                    IF TPEMRKCHECK(IOD.[CF]) THEN                               37230190
                        WRITE(OUTFI[DBL],TMWF)                                  37230200
                    ELSE                                                        37230210
                        BEGIN                                                   37230220
                            E:=(T:=REAL(TPEMRKCHECK(-(IOD.[CF])))).[CF]37230230
                                -IOD.[CF]+REAL(T.[FF] GTR 0);                   37230240
                            GO WD;                                              37230250
                        END;                                                    37230260
                END;                                                            37230270
                IF ABR THEN GO IODS;                                            37230280
                WRITE(OUTFI[DBL],ULF);                                          37240000
                WRITE(OUTFI[DBL],ORIGF);                                        37250000
            END;                                                                37260000
            IF MASK.[46:2] LSS 3 THEN IODANALYZER ELSE                          37270000
            WRITE(OUTFI,ORIGINALF);                                             37280000
        IODS:                                                                   37285000
            WRITE(OUTBUFFER[*],IODF);                                           37290000
            EDIT(1,IOD,OUTBUFFER[3],0,1,JUNK,JUNK,0);                           37300000
            WRITE(OUTFI,6,OUTBUFFER[*]);                                        37310000
            WRITE(OUTBUFFER[*],RESF);                                           37320000
            EDIT(1,RESULT,OUTBUFFER[3],0,1,JUNK,JUNK,0);                        37330000
            WRITE(OUTFI[DBL],6,OUTBUFFER[*]);                                   37340000
            IF E:=RESULT.[25:8]=0 THEN                                          37350000
                WRITE(OUTFI,NOERRF)                                             37360000
            ELSE                                                                37370000
            BEGIN                                                               37380000
                IF BL(E.[46:1]) THEN                                            37390000
                BEGIN                                                           37400000
                    WRITE(OUTFI,D17F);                                          37410000
                    GO SIX;                                                     37420000
                END;                                                            37430000
                IF BL(E.[44:1]) THEN                                            37440000
                IF BL(R.[2:1]) THEN                                             37450000
                BEGIN                                                           37460000
                    MOD3IOS:=TRUE;                                              37470000
                    IF BL(R.[11:1]) THEN                                        37480000
                    BEGIN                                                       37490000
                        WRITE(OUTFI,D19F);                                      37500000
                        GO SIX;                                                 37510000
                    END;                                                        37520000
                    IF BL(R.[24:1]) THEN %READ                                  37530000
                    BEGIN                                                       37540000
                        IF BL(R.[13:1]) THEN %BOT                               37550000
                        BEGIN                                                   37560000
                            R.[27:1]:=1;                                        37570000
                            IF BL(MASK.[29:1]) THEN                             37580000
                            WRITE(OUTFI,BOTAEF) ELSE                            37590000
                            WRITE(OUTFI,BOTF);                                  37600000
                            GO SIX;                                             37610000
                        END ELSE                                                37620000
                        IF BL(R.[14:1]) THEN                                    37630000
                        BEGIN                                                   37640000
                            IF BL(MASK.[29:1]) THEN                             37650000
                            WRITE(OUTFI,EOTAEF) ELSE                            37660000
                            WRITE(OUTFI,EOTF);                                  37670000
                            R.[27:1]:=1;                                        37680000
                            IF RL(BL(E) AND BL(3"367"))=0 THEN                  37690000
                            GO SIX;                                             37700000
                        END;                                                    37710000
```

```
                END ELSE                                                37720000
                BEGIN                                                   37730000
                     IF BL(R.[12:1]) THEN %BLANK TAPE                   37740000
                     BEGIN                                              37750000
                          WRITE(OUTFI,BLNKTPEF);                        37760000
                          GO SIX;                                       37770000
                     END;                                               37780000
                     IF BL(R.[14:1]) THEN                               37790000
                     BEGIN                                              37800000
                          IF BL(MASK.[29:1]) THEN                       37810000
                          WRITE(OUTFI,EOTAEF) ELSE                      37820000
                          WRITE(OUTFI,EOTF);                            37830000
                          R.[27:1]:=1;                                  37840000
                     END;                                               37850000
                END;                                                    37860000
                END ELSE                                                37870000
                BEGIN                                                   37880000
                     WRITE(OUTFI,D19F);                                 37890000
                     GO SIX;                                            37900000
                END;                                                    37910000
                IF BL(R.[24:1]) THEN %READ                              37920000
                BEGIN                                                   37930000
                     IF BL(E.[41:1]) THEN                               37940000
                     BEGIN                                              37950000
                          WRITE(OUTFI,INVADDRF);                        37960000
                          GO SIX;                                       37970000
                     END;                                               37980000
                     IF BL(R.[27:1]) THEN                               37990000
                     BEGIN                                              38000000
                          IF BL(MASK.[27:1]) THEN                       38010000
                          WRITE(OUTFI,EOFAEF) ELSE                      38020000
                          WRITE(OUTFI,EOFF);                            38030000
                          IF NOT BL(R.[28:1]) THEN                      38040000
                          GO SIX;                                       38050000
                     END;                                               38060000
           TAPEPARITY:                                                  38070000
                     IF ABS(KEY) LEQ 2 THEN                             38080000
                     RETRYTOG:=TRUE;                                    38090000
                     IF BL(E.[43:1]) THEN                               38100000
                          BEGIN                                         38110000
                               IF RETRYTOG:=NOT BL(MASK.[28:1]) THEN    38120000
                                    WRITE(OUTFI,D20F) ELSE              38130000
                                    WRITE(OUTFI,D20AEF);                38140000
                          END                                           38150000
                     ELSE                                               38160000
                          WRITE(OUTFI,BLNKTPERF);                       38170000
                     GO SIX;                                            38180000
                END;                                                    38190000
                IF BL(E.[41:1]) THEN                                    38200000
                IF BL(E.[43:1]) THEN                                    38210000
                BEGIN                                                   38220000
                     WRITE(OUTFI,WRTLOCKF,UNL);                         38230000
                     GO SIX;                                            38240000
                END ELSE                                                38250000
                BEGIN                                                   38260000
                     WRITE(OUTFI,INVADDRF);                             38270000
                     GO SIX;                                            38280000
                END;                                                    38290000
                IF RETRYTOG:=BL(E.[43:1]) THEN GO TAPEPARITY;           38300000
           END;                                                         38310000
```

```
SIX:                                                                    38320000
     IF RETRYING AND NOT BL(MASK) THEN GO XIT;                          38330000
          IF KEY=1 THEN                                                 38340000
          BEGIN                                                         38350000
               IF(NOT RETRYING) OR BL(MASK) THEN                        38360000
                    READERROR(IOD,WRDCOUNT);                %140638400000
          END ELSE                                                      38420000
          IF KEY=3 AND NOT RETRYING THEN                                38420100
               IF SIZERR THEN                                           38420200
                    WRITE(OUTFI[DBL],SPACERR,WRDCOUNT);     %140638420300
          IF RETRYING OR ABR THEN GO PAGECHECK;                         38421000
          IF RETRYTOG THEN                                              38430000
          BEGIN                                                         38440000
                WRITE(OUTFI[DBL]);                                      38441000
               NT2:=TAPEPARITYRETRY(R,IOD);                             38450000
               IF MAKELOG THEN                                          38450100
               BEGIN                                                    38450200
                    LOGBUFFER[9]:= RTYCOUNT+RTYCOUNT;                   38450300
                    LOGBUFFER[10]:= NT2.[CF];                           38450400
               END;                                                     38450500
               IF KEY=1 THEN                                            38460000
               BEGIN                                                    38470000
                    IF E:=NT2.[CF]=0 THEN                               38520000
                         IF COMPAREDATA THEN                            38530000
                              WRITE(OUTFI,BAD)                          38540000
                         ELSE                                           38550000
                              BEGIN                                     38550100
                              R:=-R;                                    38550200
                              WRITE(OUTFI,SUCCESSF)                     38560000
                              END                                       38560100
                    ELSE                                                38570000
                    IF E=16 THEN                                        38580000
                         WRITE(OUTFI,IRRECOVRF)                         38590000
                    ELSE                                                38600000
                    IF E=32 THEN                                        38610000
                         WRITE(OUTFI,BLNKTPEIRREC)                      38620000
                    ELSE                                                38630000
                    BEGIN                                               38640000
                         READERROR(IOD,WRDCOUNT);           %140638650000
                         IF E=8 OR E=128 THEN                           38660000
                              WRITE(OUTFI,ODD)                          38670000
                         ELSE                                           38680000
                         IF COMPAREDATA THEN                            38690000
                              WRITE(OUTFI,BAD)                          38700000
                         ELSE                                           38710000
                              BEGIN                                     38710100
                              WRITE(OUTFI,ODD);                         38720000
                              R:=-R;                                    38720100
                              END;                                      38720200
                    END;                                                38730000
               END                                                      38740000
               ELSE                                                     38750000
               BEGIN                                                    38760000
                    IF NT2.[CF]=0 THEN                                  38770000
                         BEGIN                                          38780000
                         WRITE(OUTFI,SUCCESSF);                         38780100
                         R:=-R;                                         38780200
                         END ELSE                                       38780300
                         WRITE(OUTFI,IRRECOVRF);                        38790000
               END;                                                     38800000
```

```
                    WRITE(OUTFI[DBL]);                                    38802000
                END ELSE                                                  38810000
            BEGIN                                                         38830000
                WRITE(OUTFI[DBL]);                                        38831000
                IF BL(MASK,[28:1]) AND                                    38840000
                    BL(R,[28:1]) THEN                                     38850000
                WRITE(OUTFI,STRANGE) ELSE                                 38860000
                WRITE(OUTFI,NOTRY);                                       38870000
                WRITE(OUTFI[DBL]);                                        38872000
            END;                                                          38880000
        PAGECHECK:                                                        38885000
            IF PGE THEN                                                   38910000
            IF PAGE THEN WRITE(OUTFI[PAGE]) ELSE                          38920000
            WRITE(OUTFI[DBL],STAR);                                       38930000
        XIT:                                                              38930100
            IF MAKELOG THEN LINKITUP;                                     38930200
            DELAY:=SAVEDELAY;                                             38939300
        END;                                                              38940000
%*****************************************************************************38950000
    REAL PROCEDURE TAPEPARITYRETRY(R,OIOD); VALUE R,OIOD;                 38960000
        REAL R,OIOD;                                                      38970000
        BEGIN                                                             38980000
                                                                          38980005
        COMMENT                                                           38980010
                                                                          38980015
            FUNCTIONALLY THE SAME AS THE MCP ROUTINE BY                   38980020
            THE SAME NAME..  GIVES UP SOMEWHAT EASIER                     38980025
            HOWEVER;                                                      38980030
                                                                          38980035
        REAL                                                              38990000
            T1,T2,T3,Z,Y,SIZE,LIMIT;                                      39000000
        BOOLEAN OT;                                                       39010000
        INTEGER I;                                                        39020000
        OWN INTEGER MSK,KEY;                                              39021000
        OWN REAL RESULT,IOD,SPACEMASK,SPACEIOD,M,W,MODE,N;                39030000
        OWN REAL J,K;                                                     39040000
        DEFINE ERASEIOD=SPACEMASK#;                                       39050000
        OWN REAL BSIZE;                                                   39060000
        DEFINE RL=REAL#;                                                  39070000
        LABEL                                                             39100000
            GIVEUP,                                                       39110000
            RP,                                                           39120000
            LP,                                                           39130000
            LX;                                                           39140000
        OWN REAL T4;                                                      39150000
        LABEL XIT;                                                        39160000
        BOOLEAN PROCEDURE DOTHEIONOW(R,OT); VALUE R;                      39180000
            REAL R; BOOLEAN OT;                                           39190000
            BEGIN                                                         39200000
            LABEL XIO;                                                    39210000
            INTEGER Y;                                                    39220000
            FOR Y:=1 STEP 1 UNTIL 18 DO                                   39230000
                BEGIN                                                     39240000
                    IF BL(R,[24:1]) THEN                                  39250000
                    BEGIN                                                 39260000
                        IF OT THEN IF IOD1,[IFL]=1 THEN                   39261000
                        GETPATTERN(=EMPTY,B);                             39262000
                        WHILE T4 GTR TIME(1) DO                           39270000
                        WHEN(0);                                          39280000
                        T4:=TIME(1)+4;                                    39290000
```

```
                    END;                                                    39300000
                    STARTAPEIO(IOD,RESULT);                                 39310000
                    IF OT THEN MSK:=MSK&R[27:27:1];                         39311000
                    IF BOOLEAN(TIME(-2)) THEN STOPPER:=-1;     %140         39312000
                    IOFINISH(IOD,RESULT,-RL(OT)&MSK[25:40:8],KEY);          39320000
                    MSK.[27:1]:=0;                                          39321000
                    IF BL(RESULT.[29:1]) AND BL(RESULT.[2:1]) THEN          39330000
                    BEGIN                                                   39340000
                         IF BL(RESULT.[12:1]) THEN                          39350000
                         IF BL(IOD.[24:1]) THEN                             39360000
                         TRANS:=TRANS-1&IOD[1:22:1] ELSE                    39370000
                         BEGIN                                              39380000
                              DOTHEIONOW:=TRUE;;                            39390000
                              MODE:=16;                                     39400000
                         END ELSE                                           39410000
                         IF BL(RESULT.[11:1]) THEN  %MEM PAR                39420000
                         BEGIN                                              39430000
                              MODE:=16;                                     39440000
                              DOTHEIONOW:=TRUE;                             39450000
                              GO XIO;                                       39460000
                         END;                                               39470000
                         IF RESULT.[13:2] NEQ 0 THEN Y:=18;                 39480000
                    END ELSE                                                39490000
                    GO TO XIO;                                              39500000
               END;                                                         39510000
               RESULT.[27:1]:=1; MODE:=32;                                  39520000
          XIO: OT:=FALSE; END OF DOTHEIONOW;                                39530000
          DEFINE DOIONOW=                                                   39540000
               BEGIN IF DOTHEIONOW(R,OT) THEN GO XIT;END#;                  39550000
          INTEGER PROCEDURE SPACEITBACK(R,OIOD,OT); VALUE R,OIOD;           39560000
               REAL R,OIOD; BOOLEAN OT;                                     39570000
               BEGIN                                                        39580000
               LABEL XIS; INTEGER OMASK;                                    39590000
               LIST BSIZEL(BSIZE);                                          39591000
               DEFINE DOIONOW=IF DOTHEIONOW(R,OT) THEN                      39600000
                         BEGIN SPACEITBACK:=2; GO XIS; END#;                39610000
               FORMAT ERASERRF("COMMENT: ERASE ERROR DETECTED",             39620000
                         /,X9,"-AFTER RETRY, LENGTH OF ",                   39630000
                         "PRECEDING RECORD=",I4,", NOT SAME ",              39640000
                         "AS BEFORE (BAD)",/,X9,                            39641000
                         "-GARBAGE WAS APPARENTLY LEFT IN ",                39641100
                         "AREA ERASED"),                                    39641200
                    SPACES("COMMENT: ",I4," BACKSPACING OPERATIONS ",       39641300
                         "WERE REQUIRED TO POSITION ",                      39641400
                         /,X10,"THE TAPE FOR CHECKING THE ",                39641500
                         "LENGTH OF THE PRECEDING RECORD ",                 39641600
                         /,X9,"-BACKSPACING WAS DONE UNTIL THE ",           39641800
                         "NUMBER OF WORDS SPACED OVER EXCEEDED ",           39641900
                         /,X10,"THE NUMBER OF WORDS WRITTEN OR ",           39642000
                         "UNTIL EOF"),                                      39642100
                    PRECF("COMMENT: BEFORE RETRY, LENGTH OF ",              39642110
                         "PRECEDING RECORD=",I4,", REMEMBERED ",            39642120
                         "FOR TEST FURTHER ON"),                            39642200
                     PRECF1("COMMENT: AFTER RETRY, LENGTH OF ",             39642300
                          "PRECEDING RECORD=",I4,", SAME AS ",              39642400
                          "BEFORE (GOOD)");                                 39642500
               IF TRANS=1 THEN %FIRST RECORD SO REWIND.....                 39650000
               BEGIN                                                        39660000
                    IOD:=3"4200000000"&OIOD[3:3:5];                         39670000
                    DOIONOW;                                                39680000
```

```
                END ELSE                                                    39690000
                BEGIN                                                       39700000
                     IF N GTR 0 THEN WRITE(OUTFI[DBL]);                     39700050
                     M:=W;                                                  39710000
                     KEY:=3;                                                39720000
                     IOD:=SPACEIOD;                                         39730000
                     J:=0;                                                  39740000
                     CMASK:=MSK;  MSK:=EMPTY;                               39741000
                     DO BEGIN                                               39750000
                          DOIONOW;                                          39760000
                          TRANS:=TRANS+1;                                   39770000
                          J:=J+1;                                           39780000
                     END UNTIL((M:=RESULT.[CF]-SPACEIOD.[CF]+M) LSS 0       39790000
                          OR BL(RESULT.[27:1])) AND J GTR 1;                39800000
                     TRANS:=TRANS-2;                                        39810000
                     IOD:=SPACEIOD&0[22:47:1];                              39820000
                     DOIONOW;                                               39830000
                     WRITE(OUTFI,SPACES,J);                                 39830500
                     WRITE(OUTFI[DBL]);                                     39831000
                     IF N=0 THEN                                            39840000
                          WRITE(OUTFI[DBL],PRECF,BSIZE:=                    39841000
                               RESULT.[CF]-IOD.[CF])                        39842000
                     ELSE                                                   39843000
                     IF BSIZE NEQ BSIZE:=RESULT.[CF]-IOD.[CF] THEN          39850000
                     BEGIN                                                  39860000
                          WRITE(OUTFI,ERASERRF,BSIZEL);                     39880000
                          WRITE(OUTFI[DBL]);                                39890000
                          SPACEITBACK:=1;                                   39900000
                          GO XIS;                                           39901000
                END ELSE                                                    39910000
                     WRITE(OUTFI[DBL],PRECF1,BSIZEL);                       39911000
                          MSK:=OMASK;                                       39912000
                     END;                                                   39920000
                XIS: END OF SPACEITBACK;                                    39930000
                STREAM PROCEDURE ROTO1(Z,Y,S,SK,GM,D); VALUE Z,Y,S,SK,GM,D; 39930100
                     BEGIN                                                  39930200
                     SI:=S; SI:=SI+SK; DI:=D;                               39930300
                     Y(16(DS:=32 CHR));                                     39930400
                     Z(DS:=8 CHR);                                          39930500
                     SK(DS:=LIT " ");                                       39930600
                     DI:=DI-SK; SI:=LOC GM; SI:=SI+7; DS:=CHR;              39930700
                     END;                                                   39930800
                STREAM PROCEDURE ROTO2(Z,Y,S,SK,FL,FK,D);                   39940000
                     VALUE Z,Y,S,SK,FL,FK,D;                                39950000
                     BEGIN                                                  39960000
                          SI:=S; SI:=SI+SK; DI:=D; DI:=DI+7;                39970000
                          Y(16(32(DS:=CHR; SI:=SI-2; DI:=DI-2)));           39980000
                          Z(8(DS:=CHR; SI:=SI-2; DI:=DI-2));                39990000
                          SI:=LOC FL; SI:=SI+7;                             39991000
                          FK(DS:=CHR; SI:=SI-1; DI:=DI-2);                  39992000
                     END;                                                   40000000
                DEFINE                                                %140440010000
                     SPACEBACK=BEGIN                                  %140440011000
                               IF BOOLEAN(NT1:=SPACEITBACK(R,QIOD,QT)) THEN  40012000
                               GO GIVEUP;                             %140440013000
                               IF NT1=2 THEN GO XIT;                  %140440014000
                               END#;                                  %140440015000
                FORMAT                                                      40020000
                     BACKF("COMMENT: AT THIS POINT THE TAPE WAS ",          40040000
                          "SPACED INTO THE VACUUM COLUMN AND ",/,           40050000
```

```
          X9,"THEN SPACED BACK TO BLOCK #",I5),                          40060000
     MOVEOF("INFORMATION MOVED TO ",A*," OF BUFFER ",                    40070000
          "TO AGREE WITH ORIGINAL I/O");                                 40080000
%                                                                        40090000
     MSK:=KEY:=MODE:=W:=J:=K:=BSIZE:=N:=T4:=0;                          40091000
          %INITIALIZE "OWN" VARIABLES NOT INITIALIZED                    40092000
          %ELSEWHERE                                                     40093000
     IF BL(R.[24:1]) THEN %READ ERROR                                    40100000
     BEGIN                                                               40110000
          SPACEMASK:=REAL(BL(OIOD.[21:2]×3"1111") EQV                    40120000
               NOT BL(3"0123"));                                         40130000
          SPACEIOD:=OIOD&1[8:38:10]&1[23:47:1];                          40140000
          FOR M:=1 STEP 1 UNTIL 2 DO                                     40150000
          BEGIN SPACEIOD:=SPACEIOD&SPACEMASK[21:46:2];                   40160000
             MSK:=16; KEY:=1;                                            40170000
             FOR N:=1 STEP 1 UNTIL 2 DO                                  40180000
               BEGIN IOD:=SPACEIOD;                                      40190000
               IF N*M GTR 2 THEN                                         40200000
          LP:    BEGIN                                                  40210000
                    DOIONOW;                                             40220000
          END ELSE                                                       40230000
               IF NOT (BL(R.[29:1]) AND BL(R.[2:1]) AND                  40240000
                    BL(R.[12:1])) THEN GO LP;                            40250000
               IF BL(RESULT.[28:1]) THEN                                 40260000
                    BEGIN                                                40270000
                    OT:=BL(3);                                           40280000
                    MSK:=MODE:=0; IOD:=OIOD;                             40290000
                    END                                                  40300000
               ELSE                                                      40310000
                    BEGIN; MODE:=8;                                      40320000
                    MSK:=16;                                             40330000
                         IOD:=OIOD&SPACEMASK[21:43:2];                   40340000
                    END;                                                 40350000
          DOIONOW;                                                       40360000
          IF NOT BL(RESULT.[28:1]) THEN GO XIT;                          40370000
          IF MOD3IOS THEN IF BL(OIOD.[23:1]) THEN                        40380000
          BEGIN                                                          40390000
               MSK:=0;                                                   40400000
               Z:=IOD:=OIOD&SPACEMASK[21:40:2]&                          40420000
                  (OIOD.[CF]+(OIOD.[8:10]-1)&                            40430000
                  OIOD[1:22:1])[CTC];                                    40440000
               DOIONOW; MODE:=64;                                        40450000
               IF BL(RESULT.[28:1]) THEN                                 40460000
               BEGIN                                                     40470000
                    OT:=BL(3); MODE:=0;                                  40480000
                    IOD:=OIOD; DOIONOW;                                  40490000
                    IF NOT BL(RESULT.[28:1]) THEN GO XIT;                40500000
                    IOD:=Z&SPACEMASK[21:46:2];                           40510000
                    MSK:=16;                                             40520000
                    DOIONOW; MODE:=128;                                  40530000
                    IF BL(RESULT.[28:1]) THEN                            40540000
                    BEGIN IOD:=OIOD&SPACEMASK[21:43:2];                  40550000
                         MODE:=8;                                        40560000
          RP:                                                            40570000
                         Z:=0;                                           40580000
                         DOIONOW;                                        40590000
                         IF BL(RESULT.[28:1]) THEN                       40600000
                              GO TO LX ELSE GO XIT;                      40610000
                    END;                                                 40620000
          END;                                                           40630000
```

```
Z:=ABS(IOD.[CF]-RESULT.[CF]);                                  40640000
IF IOD.[21:2]=0 THEN                                           40650000
  Z:=Z-REAL(RESULT.[15:3]=0);                                  40660000
IF IOD.[8:10] LSS Z THEN                                       40670000
     BEGIN                                                     40680000
     OT:=BL(3);                                                40690000
     IOD:=OIOD; MODE:=0;                                       40700000
     GO RP;                                                    40710000
     END;                                                      40720000
IF BL(IOD.[22:1]) THEN                                         40730000
ROTO1(Z,Z DIV 64,RESULT.[CF]+1,                                40740000
      (RESULT.[15:3]+1).[45:3],                                40750000
       IF BL(IOD.[21:1]) THEN 0                                40760000
          ELSE 3"37",OIOD.[CF]) ELSE                           40770000
ROTO2(Z,Z DIV 64,RESULT.[CF]-1,                                40780000
      (RESULT.[15:3]+7).[45:3],                                40790000
       IF BL(IOD.[21:1]) THEN 0                                40800000
         ELSE 3"14",(8-RESULT.[15:3])                          40810000
      .[45:3],OIOD.[CF]);                                      40820000
KEY:=3; MSK:=EMPTY;                                %1501 40830000
WRITE(OUTFI[DBL]);                                             40831000
WRITE(OUTFI[DBL],MOVEDF,IF                                     40840000
   BL(IOD.[22:1]) THEN                                         40850000
        5 ELSE 4,                                              40860000
     IF BL(IOD.[22:1]) THEN                                    40870000
        "FRONT" ELSE "BACK");                                  40880000
IOD:=3"140000005"&OIOD[21:21:2]&                               40890000
     OIOD[3:3:5];                                              40900000
     DOIONOW; GO XIT;                                          40910000
LX:       END;                                                 40920000
     END;                                                      40930000
     MSK:=EMPTY;                                               40940000
     N:=IF TRANS LSS 15 THEN TRANS ELSE 15;                    40950000
     IOD:=SPACEIOD&SPACEMASK[21:40:2];                         40960000
     FOR W:=1 STEP 1 UNTIL N DO                                40970000
        BEGIN DOIONOW;                                         40980000
           IF BL(RESULT.[27:1]) THEN N:=0;                     40990000
        END;                                                   41000000
     IOD:=SPACEIOD&SPACEMASK[21:37:2];                         41010000
     FOR N:=3 STEP 1 UNTIL W DO DOIONOW;                       41020000
     OT:=BL(3);                                                41030000
     MSK:=0;                                                   41040000
     WRITE(OUTFI[DBL]);                                        41050000
     WRITE(OUTFI,BACKF,TRANS+ABS(OIOD.[22:1]-1));              41060000
     WRITE(OUTFI[DBL]);                                        41070000
     IOD:=OIOD; MODE:=0; DOIONOW;                              41080000
     IF NOT BL(RESULT.[28:1]) THEN GO XIT;                     41090000
  END;                                                         41100000
  MODE:=16;                                                    41110000
END ELSE BEGIN   %WRITE PARITY                                 41120000
  LIMIT:=3"10000";                                             41130000
  ERASEIOD:=(SPACEIOD:=OIOD&0[8:38:10]&7[22:45:3]&             41140000
     COREADDR(T2)[CTC])&3"112"[18:41:7];                       41150000
  W:=R.[CF]-OIOD.[CF]+2;                                       41160000
  WHILE TRUE DO                                                41170000
  BEGIN                                                        41180000
     SPACEBACK;                                                41190000
     IF (N:=N+W+128) GTR LIMIT OR STOPPER NEQ 0                41200000
        THEN GO GIVEUP;                                        41200100
     IOD:=ERASEIOD&N[9:39:9];                                  41210000
```

```
                KEY:=4;                                                 41220000
                FOR J:=0 STEP 512 UNTIL N DO                            41230000
                BEGIN TRANS:=TRANS-1;                                   41240000
                     DOIONOW;                                           41250000
                     IOD:=ERASEIOD&1[8:47:1];                           41260000
                     IF BL(RESULT.[27:1]) THEN                          41270000
                     BEGIN                                              41280000
                          IF NOT BL(R.[27:1]) THEN LIMIT:=J+3000;       41290000
                          R.[27:1]:=1;                                  41300000
                     END;                                               41310000
                END;                                                    41320000
                KEY:=2; OT:=BL(3);                                      41330000
                IOD:=OIOD;                                              41340000
                DOIONOW;                                                41350000
                IF BL(RESULT.[27:1]) THEN R.[27:1]:=1;                  41360000
                IF NOT BL(RESULT.[28:1]) THEN                           41370000
                BEGIN                                                   41380000
                     SIZE:=RESULT.[CF]-OIOD.[CF];                       41390000
                     SPACEBACK;                                         41400000
                     IOD:=SPACEIOD&0[22:47:1];                          41410000
                     DOIONOW;                                           41420000
                     IF NOT (BL(RESULT.[28:1]) OR (BL(OIOD.[21:1])      41430000
                          AND (RESULT.[CF]-SPACEIOD.[CF] NEQ SIZE)))    41440000
                     THEN                                               41450000
                     BEGIN                                              41460000
                          MODE:=0&R[42:27:1];                           41470000
                          GO XIT;                                       41480000
                     END;                                               41490000
                END;                                                    41500000
           END;                                                         41510000
      GIVEUP:                                                           41520000
           MODE:=16;                                                    41530000
      END;                                                              41540000
      XIT: TAPEPARITYRETRY:=MODE&Z[CTF];                                41550000
      END;                                                              41560000
%***************************************************************************41560100
 PROCEDURE LOOKAHEAD(KEY); VALUE KEY; INTEGER KEY;                      41560200
      BEGIN                                                             41560300
                                                                        41560305
      COMMENT  CHECKS TO SEE IF ANYTHING CAN BE DONE                    41560310
               BEFORE GOING TO SLEEP TO WAIT FOR I/O;                   41560315
      INTEGER NEXTKEY,NEXTP,NEXTB;                                      41560400
      REAL NEXTIOD1;                                                    41560450
      %                                                                 41560500
      P:=EMPTY;                                                         41560600
      IF KEY=1 THEN                                                     41560700
           IF P:=IOD1.[FF] NEQ EMPTY THEN                               41560800
                GETPATTERN(P,1);                                        41560900
      IF CODE[A].[IFL]=11 THEN                                          41561000
      BEGIN                                                             41561100
           IF NEXTKEY:=(NEXTIOD1:=CODE[A+1]).[IFL]=2 THEN               41561200
                IF NEXTP:=NEXTIOD1.[FF] NEQ EMPTY THEN                  41561300
                BEGIN                                                   41561400
                     IF NEXTB:=NEXTIOD1.[SCF]=3"777" THEN               41561500
                          NEXTB:=1;                                     41561600
                     IF NEXTB NEQ 0 AND (NEXTB NEQ 1 OR                 41561700
                          P=EMPTY) THEN GETPATTERN(NEXTP,               41561800
                               NEXTB);                                  41561900
                END;                                                    41562000
      END;                                                              41562100
```

```
          END;                                                                  41562200
%*************************************************************************41570000
     STREAM PROCEDURE EOJMSG(B,M,F); VALUE M,F;                                 41570100
          BEGIN                                                                 41570150
          SI:=LOC M; SI:=SI+1; DI:=B;                                           41570200
          DS:=2 LIT " ";                                                        41570220
          7(IF SC=" " THEN JUMP OUT ELSE DS:=CHR);                              41570250
          DS:=LIT "/"; SI:=LOC F; SI:=SI+1;                                     41570300
          7(IF SC=" " THEN JUMP OUT ELSE DS:=CHR);                              41570350
          DS:=11 LIT "(SIMPL) EOJ";                                             41570400
          DS:=LIT "*";                                                          41570450
          END;                                                                  41570500
%*************************************************************************41570600
     PROCEDURE TAPEIO(IOD,IOD1); VALUE IOD,IOD1; REAL IOD,IOD1;                 41580000
          BEGIN                                                                 41590000
                                                                                41590005
          COMMENT  INTERPRETS I/O INSTRUCTIONS;                                 41590010
                                                                                41590015
          LABEL REED,W,SP,BKSP,ERSE,RWND,XIT;                                   41600000
          SWITCH IOS:=REED,W,SP,ERSE,RWND,BKSP;                                 41610000
          LIST TANDM(NT1,S,A=1);                                                41620000
          REAL MASK,RESULT;                                                     41630000
          REAL WC1,SPACELOC,WC2; %KEEP THESE IN ORDER....                       41631000
          STREAM PROCEDURE LITERALMOVE(LITERAL,ADDR); VALUE                     41640000
               LITERAL,ADDR;                                                    41650000
               BEGIN SI:=LOC LITERAL; DI:=ADDR; DS:=8 CHR; END;                 41660000
          %                                                                     41670000
          MASK:=0&IOD[25:25:5];                                                 41680000
          UNIT:=(NT2:=UNITABLE[1,IOD.[3:5]]).[CF];                              41690000
          IOD:=IOD&(TINU:=NT2.[FF])[3:43:5]&                                    41700000
               5[25:40:8]&                                                      41710000
               BUFFERS[B:=(IF NT1:=IOD1.[SCF]=3"777" THEN 1                     41720000
                    ELSE NT1)][C]C]&0[25:40:8];                                 41730000
          IF IOD.[SF]=1023 THEN                                                 41740000
          BEGIN                                                                 41750000
               IF TALLY GTR 0 AND NT1:=(TALLY+7)DIV 8 LEQ 1020 THEN             41760000
               IOD.[SF]:=NT1 ELSE                                               41770000
               BEGIN                                                            41780000
                    WRITE(CFILE,INVTALLY,TANDM);                                41790000
                    IF NOT TWXOUT THEN                                          41800000
                    WRITE(OUTFI,INVTALLY1,TANDM);                               41810000
                    GO EXIT;                                                    41820000
               END;                                                             41830000
          END;                                                                  41840000
          IOCOUNT:= IOCOUNT+1;                                                  41841000
          GO TO IOS[IOD1.[IFL]];                                                41850000
     %                                                                          41860000
REED:                                                                           41870000
          GETPATTERN(-EMPTY,B) ;                                                41880000
          IF BL(IOD.[22:1]) THEN IOD.[CF]:=IOD.[CF]-1+                          41890000
               NT2:=IF BL(IOD.[23:1]) THEN IOD.[SF] ELSE                        41900000
               BUFFERS[B].[SF];                                                 41910000
          IF IOD.[21:2]=0 THEN LITERALMOVE(NOT FALSE,IOD.[CF]+IOD.[SF]);        41911000
          STARTAPEIO(ABS(IOD),RESULT);                                          41920000
          LOOKAHEAD(1);                                                         41920100
          IOFINISH(IOD,RESULT,MASK,1);                                          41930000
          GO XIT;                                                               41940000
W:                                                                              41950000
          IF BL(MASK.[27:1]) THEN   %WRITE TAPEMARK                             41960000
          BEGIN                                                                 41970000
```

```
                MASK.[27:1]:=0;                                          41980000
                JUNK:=0&3"1737"[1:37:11];                                41990000
                IOD.[CF]:=COREADDR(JUNK);                                42000000
          END ELSE                                                       42010000
          BEGIN                                                          42020000
                IF P:=IOD1.[FF] NEQ EMPTY THEN GETPATTERN(P,B);          42030000
                IF NOT BL(IOD.[21:1]) THEN                               42040000
                     LITERALMOVE(NOT FALSE,(NT2:=BUFFERS[B]),[CF]+       42080000
                          IOD.[SF]);                                     42090000
          END;                                                           42100000
          STARTAPEIO(ABS(IOD),RESULT);                                   42110000
          LOOKAHEAD(2);                                                  42110100
          IOFINISH(IOD,RESULT,MASK,2);                                   42120000
          GO XIT;                                                        42130000
     SP:                                                                 42140000
     BKSP:                                                               42150000
          IOD.[CF]:=COREADDR(SPACELOC);                                  42160000
          B:=0;                                                          42161000
          STARTAPEIO(ABS(IOD),RESULT);                                   42170000
          LOOKAHEAD(2);                                                  42170100
          B:=1;                                                          42170200
          IOFINISH(IOD,RESULT,MASK,3);                                   42180000
          GO XIT;                                                        42190000
     ERSE:                                                               42200000
          TRANS:=TRANS-1;                                                42210000
     RWND:                                                               42220000
          STARTAPEIO(ABS(IOD),RESULT);                                   42230000
          LOOKAHEAD(2);                                                  42230100
          IOFINISH(IOD,RESULT,MASK,IOD1.[IFL]);                          42240000
     XIT:                                                          %140642240100
          BV[NROFBVAR×(B-1)  ]:=WRDCOUNT;                                42240200
          BV[NROFBVAR×(B-1)+1]:=LIOD:=IOD;                               42240300
          BV[NROFBVAR×(B-1)+2]:=SAVER:=RESULT;                           42240400
          BV[NROFBVAR×(B-1)+3]:=2×REAL(SIZERR)+REAL(COMPAREDATA);        42240500
          END;                                                      %140642250000
%*****************************************************************************42250100
     PROCEDURE DETERMINECHANNELTYPE;                                     42250200
          BEGIN                                                          42250300
                                                                         42250305
          COMMENT DETERMINES IF MODEL II OR MODEL III I/O CONTROLS;      42250310
                                                                         42250320
          REAL RESULT;                                                   42250400
          BOOLEAN MOD3;                                                  42250500
          INTEGER AD,I;                                                  42250600
          FORMAT                                                         42250610
               MOD3FAIL("UNIT FAILED TO DETECT MOD 3 IOS",               42250620
                    "(ON REWIND AT BOT)"),                               42250630
               MOD3WEIRD("UNIT DETECTED BOT ON REWIND & ",               42250640
                    "THEREFORE MOD-3 I/O S",/,                           42250650
                    "MCP DID NOT INDICATE MOD-3 I/O S ",                 42250660
                    "HAD BEEN SENSED");                                  42250670
          %                                                              42250700
          AD:=COREADDR(RESULT);                                          42250800
          DKBUSINESS(COREADDR(MOD3IOS)&EMPTY[CTF]);                      42250900
          STARTAPEIO(3"4200000000"&UNITS[1,UNIT][3:28:5],RESULT);   %140542251000
          WAIT(AD,IOMASK);                                               42251100
          IF NOT((MOD3:=BL(RESULT.[2:1])) EQV MOD3IOS) THEN              42251200
          BEGIN                                                          42251300
               IF MOD3IOS THEN                                           42251400
                    WRITE(OUTFI[DBL],MOD3FAIL)                           42251500
```

```
            ELSE                                                                42251600
                WRITE(OUTFI[DBL],MOD3WEIRD);                                    42251700
        END;                                                                    42251800
        MOD3IOS:=MOD3IOS OR MOD3;                                               42251900
        END;                                                                    42252000
%***************************************************************************42260000
    PROCEDURE DETERMINEUNITSTATUS;                                              42260100
        BEGIN                                                                   42260200
        COMMENT - DETERMINES IF A WRITE RING IS REQUIRED AND                    42260300
            IF SO REQUESTS THAT IT BE MADE AVAILABLE;                           42260400
        INTEGER AD,I;                                                           42260500
        BOOLEAN RINGRQD;                                                        42260510
        REAL IOD,RESULT;                                                        42260520
        LABEL AXL,IO;                                                           42260600
        FORMAT NORING("WRITE RING RQD - ",A3),                                  42260700
               ABORT("TEST ON ",A3," ABORTED(NO WRITE RING)");                  42260750
        IF UNIT=EMPTY THEN UNIT:=UNITABLE[1,0].[CF];                            42260850
        NOWRT:=WRTLOCK:=FALSE;                                                  42260900
        IF NOT CONF THEN                                                        42261000
            RINGRQD:=BL(HEADER[7])                                              42261100
        ELSE                                                                    42261200
        BEGIN                                                                %140542261250
        NT1:=I:=0;                                                              42261300
        WHILE NT1 NEQ REAL(NOT FALSE) DO                                        42261400
        IF (NT1:=TESTARRAY[I].[CF] NEQ 0 AND NT2:=NT1.[27:6]                    42261500
            LEQ NUMBEROFTESTS THEN                                              42261600
            IF RINGRQD:=BL(TESTDIRECTORY[NT2].[FF]) THEN                        42261610
                NT1:=REAL(NOT FALSE)                                            42261620
            ELSE I:=I+1                                                         42261630
        ELSE I:=I+1;                                                            42261640
        END;                                                                 %140542261650
        IF RINGRQD THEN                                                         42261700
        BEGIN                                                                   42261800
    IO:                                                                         42261900
            STARTAPEIO(3"500000000"&UNITS[1,UNIT][3:28:5],                      42262000
                RESULT);                                                        42262100
            AD:=COREADDR(RESULT);                                               42262200
            WAIT(AD,IOMASK);                                                    42262300
            IF WRTLOCK:=BL(RESULT.[28:1]) THEN                                  42262400
            BEGIN                                                               42262500
                RELEASETHEUNIT(UNIT);                                        %140542262600
    AXL:                                                                        42262660
                WRITE(CFILE,NORING,UNL);                                        42262700
                IF AD:=SKIPSTOPOROK(TRUE,TRUE)=4 THEN                           42262900
                    GO AXL ELSE                                                 42263000
                IF NOWRT:=AD=1 THEN ELSE                                        42263100
                IF AD=2 THEN                                                    42263200
                BEGIN                                                           42263910
                    WRITE(OUTFI[PAGE],ABORT,UNL);                               42263920
                    GO TO IF DONETOG THEN ALLDONE ELSE RETURN;               %140542264000
                END ELSE                                                        42264010
                BEGIN                                                           42264100
                    IF GETHEUNIT(UNIT,FALSE) THEN                               42264300
                    GO TO IF DONETOG THEN ALLDONE ELSE RETURN;               %140542264350
                    RESULT:=0;                                                  42264400
                    GO IO;                                                      42264450
                END;                                                            42264500
            END;                                                                42264600
        IF GETHEUNIT(UNIT,FALSE) THEN GO TO IF DONETOG THEN                     42264650
                ALLDONE ELSE RETURN;                                         %140542264660
```

```
            END;                                                                    42264700
            END;                                                                    42264750
%***************************************************************************      42264800
PROCEDURE INITIALIZEINTERPRETER;                                                    42264900
BEGIN                                                                               42265000
STREAM PROCEDURE BRJMSG(B,M,F); VALUE M,F;                                          42266050
   BEGIN                                                                            42266100
   SI:=LOC M; SI:=SI+1; DI:=B;                                                      42266150
   DS:=2 LIT " ";                                                                   42266160
   7(IF SC=" " THEN JUMP OUT ELSE DS:=CHR);                                         42266200
   DS:=LIT "/"; SI:=LOC F; SI:=SI+1;                                                42266250
   7(IF SC=" " THEN JUMP OUT ELSE DS:=CHR);                                         42266300
   DS:=16 LIT "(SIMPL) RUNNING←";                                                   42266350
   END;                                                                             42266400
COMPILING:=FALSE;                                                                   42267000
%INITIALIZE BUFFER TABLES                                                           42330000
MOVE(NT1:=HEADER[6],COMPAREBUFF,BUFFERS[0]);                                        42340000
FOR B:=NT1-1 STEP -1 UNTIL 0 DO                                                     42350000
CASE B OF                                                                           42360000
   BEGIN                                                                            42370000
   BUFFERS[0],[CF]:=0;                                                              42380000
   BUFFERS[1],[CF]:=DBUFF;                                                          42390000
   BUFFERS[2],[CF]:=COREADDR(B2)+1;                                                 42400000
   BUFFERS[3],[CF]:=COREADDR(B3)+1;                                                 42410000
   BUFFERS[4],[CF]:=COREADDR(B4)+1;                                                 42420000
   BUFFERS[5],[CF]:=COREADDR(B5)+1;                                                 42430000
   BUFFERS[6],[CF]:=COREADDR(B6)+1;                                                 42440000
   BUFFERS[7],[CF]:=COREADDR(B7)+1;                                                 42450000
                                                                                    42560320
   END;                                                                             42700000
READ(CODEFILE);                                                                     42710000
%INITIALIZE PATTERN TABLES                                                          42740000
IF NT1:=HEADER[2] GTR 0 THEN                                                        42745000
   BEGIN                                                                            42750000
   FOR NT3:=NT1 STEP -30 UNTIL 1 DO READ(CODEFILE);                                 42755000
   TRANSFERIN(NT1,30,CODEFILE,PATTERNS[*]);                                         42760000
   PP:=EMPTY;                                                                       42770000
END;                                                                                42791000
%READ IN SEGMENT DICTIONARY                                                         42800000
TRANSFERIN(HEADER[3],30,CODEFILE,SEGDICT[*]);                                       42810000
%READ IN UNIT TABLE                                                                 42820000
IF NT1:=HEADER[1] GTR 0 THEN                                                        42830000
   BEGIN                                                                            42840000
   IF TAPETEST OR UNIT NEQ EMPTY THEN                                               42850000
      BEGIN                                                                         42860000
      MOVE(1,UNITS[0,UNIT],UNITABLE[0,0]);                                          42870000
      UNITABLE[1,0]:=UNITS[1,UNIT];                                                 42880000
      IF TAPETEST THEN                                                              42880100
      BEGIN                                                                         42880200
         LOGBUFFER[1]:= -1 & 1[18:46:2] & MIX[20:43:5];                             42880300
         LOGBUFFER[3]:= 1& UNI[3:43:5]& 1[14:38:10]& 71146[24:31:17];               42880400
         LOGBUFFER[6]:= HEADER[28];                                                 42880500
         LOGBUFFER[7]:= HEADER[29];                                                 42880600
         LOGBUFFER[8]:=PRN;                                                         42880650
         IOCOUNT:= 0;                                                               42880700
      END;                                                                          42880800
      END                                                                           42890000
   ELSE                                                                             42900000
      BEGIN                                                                         42910000
      READ(CODEFILE,NT1,UNITABLE[0,*]);                                             42920000
```

```
      READ(CODEFILE,NT1,UNITABLE[1,*]);                                  42930000
      END;                                                               42940000
   IF NOT TAPETEST THEN                                                  42940100
      IF GETHEUNIT(UNITABLE[1,0].[CF],MAKETAPE)                          42940200
         THEN                                                            42940300
            BEGIN                                                        42940350
            CLOSE(CODEFILE); GO RETURN;                                  42940400
            END;                                                         42940450
   IF NOT CONF THEN                                                      42940460
      BEGIN                                                              42970500
      DETERMINEUNITSTATUS;                                               42971000
      DETERMINECHANNELTYPE;                                              42972000
      END;                                                               42973000
   END;                                                                  42980000
IF CONF THEN                                                             42980100
   BEGIN                                                                 42980150
   IF HEADER[20]=0 THEN                                                  42980200
      MOVE(NUMBEROFTESTS+1,HEADER[FIRSTEST],TESTDIRECTORY)               42980250
   ELSE                                                                  42980300
      TRANSFERIN(NUMBEROFTESTS+1,30,CODEFILE,TESTDIRECTORY);             42980350
   IF TAPETEST THEN                                                    %140542980400
      BEGIN DETERMINEUNITSTATUS; DETERMINECHANNELTYPE; END;            %140542980450
   LOCK(TESTDIRECTORY[*]);                                             %140542980500
   LOCK(TESTARRAY[*]);                                                 %140542980550
   END;                                                                %140542980900
SAVER:=TRANS:=S:=A:=TALLY:=0;                                            42990000
TABLEPRESENT:=SIZERR:=TOGGLE:=FALSE;                                     43000000
IF HEADER[21]=0 THEN HEADER[21]:=MAXLEVELS-1;                            43001000
DELAY:=HEADER[22];                                                       43002000
LOOPCOUNT:=STACK[0]:=-1;                                            %140443010000
IF BCL AND TRANSLATEBUFFER[0]=0 THEN FILLXLATEBUFFER;                    43020000
FILLMODIFIERS(COMPAREBUFF);                                              43030000
GETSEGMENT(0);                                                      %140543031000
IF NOT SOP THEN                                                     %140543032000
   BEGIN                                                            %140543032100
                                                                    %140543032110
   COMMENT  SOP IS TRUE IF A CONFIDENCE PROGRAM IS BEING RUN, AND   %140543032120
            IF AN OUTPUT PART OCCURED IN THE MAINTENANCE CONTROL     %140543032130
            CARD;                                                   %140543032140
                                                                    %140543032150
      FINDOUTPUT(HEADER[4].[CF],HEADER[4].[SF]);                    %140543032200
      IF OCTL:=HEADER[5] GTR 0 THEN BCL:=HEADER[5] GTR 1;           %140543032300
   END;                                                             %140543032400
IF CONF THEN SPOUTCCS                                               %140543032500
ELSE IF NOT HTOG THEN                                               %140543032600
     IF TWXOUT THEN CCCOUNT:=0                                      %140543032700
     ELSE PRINTCCARDS(CCS,CCCOUNT,FALSE);                           %140543032800
IF UTOG THEN                                                        %140543033000
   BEGIN                                                            %140543033100
      MOVE(1,UNITS[0,UNIT],UNITABLE[0,0]);                          %140543033200
      UNITABLE[1,0]:=UNITS[1,UNIT];                                 %140543033300
      WRITE(OUTFI[DBL],UCHANGED,UNL);                               %140543033400
      WRITE(OUTFI[DBL]);                                            %140543033500
   END;                                                             %140543033600
IF NOT CONF THEN                                                    %140543034000
   BEGIN                                                            %140543034100
      BOJMSG(OUTBUFFER,PMFID,PFID);                                 %140543034200
      IF CSWITCH=0 THEN WRITE(TWX[DBL]);                            %140543034300
      WRITE(CFILE,9,OUTBUFFER[*]);                                  %140543034400
      DATIME;                                                       %140543034500
```

```
      WRITE(OUTFI[0BL]); WRITE(OUTFI[DBL]);                          %140543034600
    END;                                                             %140543034700
END;                                                                 43040100
%*****************************************************************43040200
PROCEDURE INPUTALLY;                                                 43040300
BEGIN                                                                43050000
REAL JUNK; %FOR SEGMENTATION                                         43060000
IF INSTRUCTION=1 THEN                                                43070000
   BEGIN                                                             43070100
   IF INSWITCH NEQ 2 THEN                                            43070200
      WRITE(INFILE,INTALLY);                                         43070300
   ACCUMULATOR:=COREADDR(JUNKBUFFER);                                43070400
   FIRSTSCAN:=LASTSCAN:=INP;                                         43070500
   READ(INFILE,10,INPUTBUFFER[*]);                                   43070600
   INPUTBUFFER[10]:=REAL(NOT FALSE);                                 43070650
   IF SAFESCAN OR COUNT GEQ 0 THEN                                   43070700
   BEGIN                                                             43070800
        WRITE(CFILE,INTALLYERR,SNA);                                 43070900
        IF NOT TWXOUT THEN                                           43071000
        WRITE(OUTFI[DBL],INTALLYERR1,SNA);                           43071100
        GO DONE;                                                     43071200
   END ELSE                                                          43071300
   TALLY:=TESTBUFFER[0];                                             43071400
   END;                                                              43071500
END OF INPUTALLY;                                                    43071600
%*****************************************************************43640000
PROCEDURE ENDOFLOOP;                                                 43650000
   BEGIN                                                             44040000
   LABEL XIT;                                                        44051000
   %                                                                 44052000
   IF INSTRUCTION LSS 0 THEN                                         44060000
   BEGIN                                                             44070000
        WRITE(OUTFI[0BL],ERRSF,ERRORL);                              %140444080000
        WRITE(OUTFI[PAGE],EOTESTF,TESTL);                            44090000
        ERROR:=0;                                                    44100000
   END ELSE                                                          44110000
   IF INSTRUCTION.[SCF]=0 THEN                                       44111000
      BEGIN   %SUBROUTINE EXIT                                       44112000
      S:=(NT1:=STACK[SREG:=SREG-1]).[18:6];                          %140444113000
      A:=NT1.[SF];                                                   44114000
      LOOPCOUNT:=NT1&0[2:19:29];                                     44115000
      GO XIT;                                                        44116000
      END;                                                           44117000
   IF LOOPCOUNT LSS 0 THEN LOOPCOUNT:=                               44120000
      IF INSTRUCTION LSS 0 THEN TESTARRAY[TESTINX].[CF] ELSE         44130000
      INSTRUCTION.[SCF];                                             44140000
   IF LOOPCOUNT:=LOOPCOUNT-1 GTR 0 THEN                              44150000
      A:=INSTRUCTION.[FF]                                            44170000
   ELSE                                                              44180000
   BEGIN                                                             44190000
        LOOPCOUNT:= STACK[SREG:=SREG-1]&0[CTF];                      %140444190100
        IF INSTRUCTION LSS 0 THEN                                    44190200
        BEGIN                                                        44190300
             LOGBUFFER[1]:= LOGBUFFER[1]& 0[2:2:1]& 3[9:45:3];       44190400
             LOGBUFFER[2]:= OCTAL(TIME(0));                          44190500
             LOGBUFFER[4]:= IOCOUNT;                                 44190600
             LOGBUFFER[5]:= ERRORS;                                  44190700
             LINKITUP;                                               44190800
        END;                                                         44190900
   END;                                                              44200000
```

```
XIT: END OF ENDOFLOOP;                                                    44210000
%*************************************************************************44220000
BOOLEAN PROCEDURE GOTCTEST;                                               44610000
   BEGIN                                                                  44620000
   LABEL AGAIN,XIT;                                                       44631000
   %                                                                      44632000
AGAIN:                                                                    44633000
   FOR TESTINX:=TESTINX+1 STEP 1 UNTIL 63 DO                              44640000
      IF (NT2:=TESTARRAY[TESTINX])=REAL(NOT FALSE) THEN                   44640100
         TESTINX:=64                                                      44640200
      ELSE                                                                44640300
      IF NT2.[CF] NEQ 0 AND (NT1:=TESTDIRECTORY[TEST:=NT2.[27:6]])        44650000
         NEQ 0 THEN                                                       44651000
         BEGIN                                                            44660000
         IF BL(NT1.[FF]) AND NOWRT THEN                                   44661000
         BEGIN                                                            44662000
              WRITE(OUTFI,DASH);                                          44663000
              WRITE(OUTFI,NOTDONE,TESTL);                                 44664000
              WRITE(OUTFI[PAGE],DASH);                                    44665000
              GO AGAIN;                                                   44666000
         END;                                                             44667000
         LOGBUFFER[1]:= LOGBUFFER[1] & 0[2:2:1] &                         44667100
                        1[9:45:3] & TEST[12:42:6];                        44667200
         LOGBUFFER[2]:= OCTAL(TIME(0));                                   44667300
         LOGBUFFER[4]:= IOCOUNT;                                          44667400
         LOGBUFFER[5]:= ERRORS;                                           44667500
         LOGBUFFER[9]:= PMFID;                                            44667600
         LOGBUFFER[10]:= PFID;                                            44667700
         LINKITUP;                                                        44667800
         IF NT2 LSS 0 THEN                                               %140344668000
         BEGIN                                                           %140344668100
              ABREV:=FALSE;                                              %140344668200
              IGNORERRORS:= NOT (NOISEONERROR:=BOOLEAN(NT2.[2:1]));      %140344668300
         END ELSE                                                        %140344668400
         BEGIN                                                           %140344668600
              IGNORERRORS:=NOISEONERROR:=FALSE;                          %140344668700
              ABREV:=BOOLEAN(NT2.[2:1]);                                 %140344668800
         END;                                                            %140344668900
         DELAY:=NT2.[18:9];                                                44669010
         A:=NT1.[CF];                                                      44670000
         GO XIT;                                                           44671000
         END;                                                              44680000
   GOTOTEST:=TRUE;                                                         44690000
XIT: END OF GOTOTEST;                                                      44690100
%*************************************************************************44690200
PROCEDURE TYPE13INSTRUCTION;                                              44700000
   BEGIN                                                                  44700100
   COMMENT  INTERPRETS TYPE 13 INSTRUCTIONS;                              44700200
   BOOLEAN JUNKB,BUFFB;                                                   %140644700300
   %                                                                      44700400
   DEFINE SORD=BL(BV[NROFBVARx(NT2-1)+3])#,                               %140644700500
          RESULT=NT3#;                                                    %140644700600
   %                                                                      %140644700700
   IF NT1:=INSTRUCTION.[SCF] GTR 4 THEN                                   %140644700800
   RESULT:=IF BUFFB:=(NT2:=INSTRUCTION.[24:9]) GTR 0                      %140644700900
           THEN BV[NROFBVARx(NT2-1)+2] ELSE SAVER;                        %140644701000
   %                                                                      %140644701100
   CASE NT1 OF                                                            %140644710000
      BEGIN                                                                 44711000
   %0                                                                       44712000
```

```
      TALLY:=CODE[(A:=A+1)-1]+(IF INSTRUCTION LSS 0 THEN TALLY ELSE 0);  44713000
%1                                                                       44714000
    TOGGLE:=BL(INSTRUCTION.[FF]);                                        44715000
%2                                                                       44716000
    JUNKB:=IF BL(INSTRUCTION.[FF]) THEN NOT TOGGLE ELSE TOGGLE;          44717000
%3                                                                       44718000
        BEGIN                                                            44719000
        NT2:=CODE[A];A:=A+1;                                             44720000
        IF NT1:=INSTRUCTION.[FF]=0 THEN                                  44721000
           JUNKB:=TALLY=NT2 ELSE                                         44722000
        IF NT1=1 THEN JUNKB:=TALLY LSS NT2 ELSE                          44723000
        IF NT1=2 THEN JUNKB:=TALLY GTR NT2 ELSE                          44724000
        IF NT1=3 THEN JUNKB:=TALLY LEQ NT2 ELSE                          44725000
        IF NT1=4 THEN JUNKB:=TALLY GEQ NT2 ELSE                          44726000
        JUNKB:=TALLY NEQ NT2;                                            44727000
        END;                                                             44728000
%4                                                                       44729000
    JUNKB:=MOD3IOS;                                                      44730000
%5                                                                       44731000
    JUNKB:=BL(RESULT.[28:1]);                                           %140644732000
%6                                                                       44733000
    JUNKB:=BL(RESULT.[2:1]) AND BL(RESULT.[13:1]);                      %140644734000
%7                                                                       44735000
    JUNKB:=IF BL(RESULT.[24:1]) THEN                                    %140644736000
              (BL(RESULT.[2:1]) AND BL(RESULT.[14:1]))                  %140644737000
           ELSE BL(RESULT.[27:1]);                                      %140644738000
%8                                                                       44739000
    JUNKB:=BL(RESULT.[27:1]);                                           %140644740000
%9                                                                       44741000
    JUNKB:=IF MOD3IOS THEN                                              %140644742000
              (BL(RESULT.[2:1]) AND BL(RESULT.[11:1]))                  %140644743000
           ELSE BL(RESULT.[29:1]);                                      %140644744000
%10                                                                      44745000
        JUNKB:=IF BUFFB THEN SORD.[46:1] ELSE SIZERR;                   %140644746000
        %11                                                              44747000
        JUNKB:=IF BUFFB THEN SORD ELSE COMPAREDATA;                     %140644748000
        %12                                                              44749000
        JUNKB:=BL(RESULT.[2:1]) AND BL(RESULT.[12:1]);                  %140644750000
        END;                                                             44751000
        IF JUNKB THEN A:=A+1;                                            44821390
    END;                                                                 44821500
%%%%%%%%%BEGINNING OF INTERPRETER BLOCK CODE%%%%%%%%%%%%%%%%%%%%%%%%%%44830000
    INITIALIZEINTERPRETER;                                               44830100
    %                                                                    44830200
S0:GO TO SW[(INSTRUCTION:=INSTR).[IFL]];                                %140444830300
    %                                                                    44830400
S1:                                                                      44830500
    INPUTALLY;                                                           44830600
    NEXTINSTRUCTION;                                                     44830700
S2:                                                                      44830800
    DISPLAYIT(INSTRUCTION);                                              44830900
    NEXTINSTRUCTION;                                                     44831000
S3:                                                                      44831100
    ENDOFLOOP;                                                           44831200
    NEXTINSTRUCTION;                                                     44831300
S4:                                                                      44831400
    GETPATTERN(INSTRUCTION.[FF],INSTRUCTION.[SCF]);                      44831500
    NEXTINSTRUCTION;                                                     44831600
S5:                                                                      44831700
    IF BUFFERS[1].[FF] LSS EMPTY THEN                                    44831800
```

```
      GETPATTERN(EMPTY,1);                                                  44831900
   GETPATTERN(EMPTY,B:=INSTRUCTION.[SCF]);                                  44832000
   IF INSTRUCTION GTR 0 THEN                                                44832100
   ROTATE((NT1:=BUFFERS[B]).[CF],PATBUFF[0],                                44832200
      8*(NT1.[SF])-NT2:=INSTRUCTION.[FF],NT2)                               44832300
   ELSE                                                                     44832400
   ROTATE((NT1:=BUFFERS[B]).[CF],PATBUFF[0],                                44832500
      NT2:=INSTRUCTION.[FF],8*(NT1.[SF])-NT2);                              44832600
   NEXTINSTRUCTION;                                                         44832700
S6:                                                                         44832800
   GETPATTERN(EMPTY,B:=INSTRUCTION.[SCF]);                                  44832900
   BUFFERSHIFT(NT1:=INSTRUCTION.[FF],NT2:=(NT3:=BUFFERS[B]).[CF],           44833000
      NT2,8*(NT3.[SF])-NT1,INSTRUCTION LSS 0,0);                            44833100
   NEXTINSTRUCTION;                                                         44833200
S7:                                                                         44833300
   IF JUNKB:=(P:=INSTRUCTION.[FF] GEQ MAXBUFFS) THEN                        44833400
      BEGIN GETPATTERN(P:=P-MAXBUFFS,1); NT1:=DBUFF; NT3:=PATTERNS[P];      44833500
      END                                                                   44833600
   ELSE                                                                     44833700
      NT1:=(NT3:=BUFFERS[P]).[CF];                                          44833800
   IF COMPAREDATA:=BIGCOMPARE(MIN(NT3.[SF],                          %150144833900
                              (NT2:=BUFFERS[B:=                      %150144833950
                               INSTRUCTION.[SCF]]).[SF]),            %150144834000
                          NT1,NT2,[CF]) THEN                         %150144834050
      COMPARERROR(INSTRUCTION,P);                                    %150144834100
   NEXTINSTRUCTION;                                                         44834200
S9:                                                                         44834300
   SREG:=LOOPCOUNT:=0;                                               %140444834400
   NEXTINSTRUCTION;                                                         44834500
S10:                                                                        44834600
   IF INSTRUCTION LSS 0 THEN                                                44834700
      BEGIN                                                                 44834800
      LOOPCOUNT:=STACK[SREG:=SREG-INSTRUCTION.[SCF]]                    %140444834900
         &0[CTF];                                                           44835000
      NEXTINSTRUCTION;                                                      44835100
      END;                                                                  44835200
   LOOPCOUNT:=0; INSTRUCTION:=CODE[A:=STACK[SREG~1],[24:9]];         %140444835300
   A:=A+1; GO S3;                                                           44835400
S11:                                                                        44835500
   TAPEIO(INSTRUCTION,IOD1:=CODE[(A:=A+1)-1]);                       %140444835600
   NEXTINSTRUCTION;                                                         44835700
S12:                                                                        44835800
   IF GOTOTEST THEN GO DONE ELSE NEXTINSTRUCTION;                           44835900
S13:                                                                        44836000
   TYPE13INSTRUCTION;                                                       44836100
   NEXTINSTRUCTION;                                                         44836200
S14:                                                                        44836300
   WHENN(INSTRUCTION.[SCF]);                                                44836400
   NEXTINSTRUCTION;                                                         44836500
S15:                                                                 %140644836600
   NEWDISPLAY(INSTRUCTION);                                          %140644836700
   NEXTINSTRUCTION;                                                  %140644836800
DONE:                                                                       44840000
   IF NOT(TWXOUT OR CONF) THEN WRITE(OUTFI[PAGE]) ELSE                      44841000
      BEGIN WRITE(OUTFI[DBL]); WRITE(OUTFI[DBL]); END;                      44841100
   EOJMSG(OUTBUFFER,PMFID,PFID);                                            44842000
   IF JUNKB:=CSWITCH=0 THEN WRITE(TWX);                                     44842500
   IF NOT CONF THEN                                                         44842600
   WRITE(CFILE,9,OUTBUFFER[*]);                                             44843000
   IF JUNKB THEN WRITE(TWX[DBL]);                                           44844000
```

```
    IF CONF THEN UNLOCK(TESTARRAY[*]);                                  44845000
    GO RETURN;                                                         %140444850000
  $POP OMIT                                                             44850100
    END;                                                                44860000
%%%%%%%%%END OF INTERPRETER BLOCK%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%44861000
END;                                                                    44870000
%%%%%%%%%END OF SCAN BLOCK%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%44871000
      RUNDISKTESTS:                                                     44880000
%##########DISK TEST BLOCK STARTS HERE##################################44890000
      BEGIN                                                             44900000
  $SET OMIT=OMITDISKTESTS                                               44900100
      LABEL                                                             44910000
            RUNTESTS;                                                   44920000
%**********************************************************************44930000
      INTEGER                                                           44940000
            SFA,                                                        44960000
            %FIRST ADDRESS THIS PASS                                    44961000
            BUFFLTH,                                                    44970000
            %I/O SIZE FOR CURRENT TEST                                  44971000
            JUMPOFF,                                                    44980000
            %JUMPOFF IS USED TO STORE THE ENDING ADDRESS DURING         44981000
            %     MAINTENANCE SEGMENT TESTING.  BECAUSE THE             44981005
            %     MAINTENANCE SEGMENTS ON 40MS DISK CORRESPOND          44981010
            %     TO TWO LOGICAL TRACKS 40000 SEGMENTS APART            44981015
            %     ADDRESSING THOSE SEGMENTS IS ACCOMPLISHED             44981020
            %     BY ADDRESSING 40000 SEGS AND THEN SKIPPING            44981025
            %     40000 TO AVOID DUPLICATION.  JUMPOFF CONTAINS         44981030
            %     THE LAST ADDRESS TO BE TESTED BEFORE SKIPPING,        44981035
            %                                                           44981040
            JUMPCOUNT,                                                  44990000
            %                                                           44990005
            %     WHEN THE MAINTENANCE SEG ADDRESS REACHES JUMPOFF,     44990010
            %     JA[JUMPCOUNT] IS EXAMINED. IF IT IS GEQ 0, ADDRESS    44990015
            %     IS CONTINUED AT THAT ADDRESS.  JUMPOFF IS SET TO      44990020
            %     JA[JUMPCOUNT+1] AND JUMPCOUNT IS INCREMENTED BY 2.    44990025
            %     IS JA[JUMPCOUNT] IS LSS 0, ADDRESSING IS TERMINATED   44990030
            %                                                           44990035
            WRTOG,                                                      45010000
            %                                                           45010005
            %     INDEX OF ACTIVE WRITE BUFFER                          45010010
            %                                                           45010015
            SC,                                                        %150145011000
            %                                                          %150145011100
            %     CONTROLS INTERROGATION OF TIME(-2)                   %150145011200
            %                                                          %150145011300
      $SET OMIT=OMIT OR NOT TUNEUP                                     %150145011350
            NOWAIT,                                                    %150145011400
            %                                                          %150145011500
            %     COUNTS NR OF TIMES WE DIDN-T HAVE TO WAIT FOR I/O FIN. 45011600
            %                                                          %150145011700
            IOT,                                                       %150145011800
            %                                                          %150145011900
            %     I/O TIME AT START OF CURRENT TEST                    %150145012000
            %                                                          %150145012100
            ETM,                                                       %150145012200
            %     ELAPSED TIME AT START OF CURRENT TEST                %150145012300
            %                                                          %150145012400
      $POP OMIT                                                        %150145012401
            RDTOG,                                                     %150145020000
            %                                                           45020005
```

```
        %       INDEX OF ACTIVE READ BUFFER                                  45020010
        %                                                                    45020015
        DELTA,                                                      %150145020100
        %                                                           %150145020200
        %       ADDRESSING INCREMENT                                %150145020300
        %                                                           %150145020400
        OLDBUFFLTH,                                                 %150145020500
        %                                                           %150145020510
        %       PREVIOUS VALUE OF BUFFLTH                           %150145020520
        %                                                           %150145020530
        ZONE,                                                       %150145020600
        %                                                           %150145020700
        %       REL SEG IN ZONE WHERE ADDRESS RANGE STARTS          %150145020800
        %                                                           %150145020900
        OFFSET,                                                     %150145021000
        %                                                           %150145021100
        %REL SEG IN ZONE WHERE ADDRESS.RANGE STARTS                  %150145021200
        %                                                           %150145021300
        ZONEOFFSET;                                                 %150145021400
        %                                                           %150145021500
        % REL SEG IN ZONE (NORMAL SEGS=30 WORD I/O-S)               %150145021600
%***************************************************************************45030000
    BOOLEAN                                                                  45040000
        WRT,                                                                 45050000
        %                                                                    45050005
        %       WRT IS TRUE DURING A WRITE TEST                              45050010
        %                                                                    45050015
        SHIF,                                                                45060000
        %                                                                    45060004
        %       TRUE DURING SHIFTING PATTERN TEST                            45060005
        %                                                                    45060010
        FORTYMILL,                                                           45070000
        %                                                                    45070005
        %       40 MS. DISK                                                  45070010
        %                                                                    45070015
        MAINT,                                                               45080000
        %                                                                    45080005
        %       MAINTENANCE SEG TEST                                         45080010
        %                                                                    45080015
        REV,                                                                 45090000
        %                                                                    45090005
        %       REVERSE ADDRESSING                                           45090010
        %                                                                    45090015
        LONG,                                                                45100000
        %                                                                    45100005
        %       TEST = 2 OR TEST = 12                               %150145100010
        %                                                                    45100015
        LONGR,                                                      %150145100100
        %                                                           %150145100200
        %       TEST = 12                                           %150145100300
        %                                                           %150145100400
        SWITCHER,                                                            45110000
        %                                                                    45110005
        %       USED DURING TEST NR 2 TO INDICATE READ OR WRITE              45110010
        %       PASS                                                         45110015
        %                                                                    45110020
        KWIK,                                                       %150145110100
        %                                                           %150145110200
        %       TEST 13 OR 14                                       %150145110300
        %                                                           %150145110400
```

```
        RO,                                                          %150145110500
        %                                                            %150145110600
        %     READ PART OF TEST ONLY                                 %150145110700
        %                                                            %150145110800
        NODATA,                                                      %150145110900
             %                                                       %150145111000
             %     NO DATA DISPLAYED ON ERROR                        %150145111100
             %                                                       %150145111200
        ADDRESSINGCOMPLETE;                                            45120000
        %                                                              45120005
        %     INDICATES NO MORE ADDRESSES TO TEST                      45120010
        %                                                              45120015
%***************************************************************************45160000
     SAVE ARRAY                                                        45170000
        IOD,RES[0:3],                                                  45180000
        %                                                              45180005
        %     IOB[B] CONTAINS THE I/O DESC FOR BUFFER B                45180010
        %     RES[B] CONTAINS THE RESULT DESC FOR BUFFER B             45180015
        %                                                              45180020
        LOCATION[0:3],                                                 45190000
        %                                                              45190005
        %     LOCATION[B]=                                             45190010
        %                                                              45190015
        %          [0:2]=0                                             45190020
        %          [2:1]=1                                             45190025
        %          [3:9]=0                                             45190030
        %          [12:6]=LUN OF DISK CONTROL BEING USED               45190035
        %          [FF ]=0                                             45190040
        %          [CF ]=COREADDRESS OF RES[B]                         45190045
        %                                                              45190050
        SZ[0:11],                                                  %150145200000
        %                                                              45200005
        %     SZ CONTAINS INFORMATION ABOUT THE ZONES                  45200010
        %                                                              45200015
        %          SZ[0]=NUMBER OF SEGS IN ZONE 1                      45200020
        %          SZ[1]=NUMBER OF SEGS IN ZONE 2                      45200025
        %          SZ[2]=NUMBER OF SEGS IN ZONE 3                      45200030
        %          SZ[3]=FIRST SEG IN ZONE 1                           45200035
        %          SZ[4]=FIRST SEG IN ZONE 2                           45200040
        %          SZ[5]=FIRST SEG IN ZONE 3                           45200045
        %          SZ[6]=LAST SEG IN ZONE 1                        %150145200050
        %          SZ[7]=LAST SEG IN ZONE 2                        %150145200100
        %          SZ[8]=LAST SEG IN ZONE 3                        %150145200200
        %          SZ[9]=0                                         %150145200210
        %          SEG NR IN M2 PATTERN (ZONE 2)                   %150145200220
        %          SEG NR IN M2 PATTERN (ZONE 3)                   %150145200230
        %                                                          %150145200300
        DLTA[0:2],                                                %150145200400
        %          OPTIMUM INTERLACES FOR ZONES 1-3                %150145200500
        %                                                          %150145200600
        SHIFTBUFF[0:12],                                          %150145210000
        %                                                              45210005
        %     CONTAINS TEST PATTERN                                    45210010
        %                                                              45210015
        DISK[0:3,0:12],                                           %150145220000
        %                                                              45220005
        %     I/O BUFFERS                                              45220010
        %                                                              45220015
        COMPAREBUFF[0:1,0:12],                                    %150145230000
        %                                                              45230005
```

```
                %     COMPAREBUFF[B,*] CONTAINS THE PATTERN THAT                 45230010
                %     IS EXPECTED NEXT ON DISK[B+2,*]                           45230015
                %                                                               45230020
               DA[0:1,0:3],                                                     45240000
                %                                                               45240005
                %     DA[I,0] CONTAINS THE ADDRESS BEING WRITTEN                45240010
                %             ON BUFFER I                                       45240015
                %     DA[I,1] CONTAINS THE PREVIOUS VALUE OF                    45240020
                %             DA[I,0]                                           45240025
                %     DA[I,2] CONTAINS THE ADDRESS BEING READ ON                45240030
                %             BUFFER I+2                                        45240035
                %     DA[I,3] CONTAINS THE PREVIOUS VALUE OF                    45240040
                %             DA[I,2]                                           45240045
                %                                                               45240050
               JA[0:1,0:4];                                          %150145250000
                %                                                               45250005
                %     SEE COMMENTS ABOVE                                        45250010
                %                                                               45250015
          %*************************************************************************45260000
               ARRAY                                                            45270000
                    E,OUNT,OLR[C:2];                                            45290000
           $SET OMIT=OMIT OR NOT DEBUG                                          45290100
          %*************************************************************************45290200
               ARRAY MESSAGE[0:14];                                             45290300
               INTEGER MESSP;                                                   45290400
           $POP OMIT                                                            45290500
          %*************************************************************************45300000
               INTEGER PROCEDURE ZNE(FA); VALUE FA; INTEGER FA;                 45310000
                                                                                45310005
               COMMENT  RETURNS (ZONE OF FA) - 1;                               45310010
                                                                                45310015
                    ZNE:=IF FA:=(FA MOD 100) LSS SZ[4] THEN 0 ELSE              45320000
                         IF FA LSS SZ[5] THEN 1 ELSE 2;                         45330000
          %*************************************************************************45340000
               REAL PROCEDURE MADDR(FILEADDR,KLUGE); VALUE FILEADDR,KLUGE;      45350000
               INTEGER FILEADDR; BOOLEAN KLUGE;                                 45360000
               BEGIN                                                            45370000
                                                                                45370005
               COMMENT                                                          45370010
                                                                                45370015
                    RETURNS THE MAINTENANCE SEGMENT CORRESPONDING               45370020
                    TO THE NORMAL SEGMENT FILEADDR.  MAINT SEG ADDR             45370025
                    IS RETURNED IN ALPHA FORMAT.  IF FILEADDR LSS 0,            45370030
                    ADDRESS RETURNED IS A NORMAL SEGMENT (EITHER                45370035
                    FIRST OR LAST IN ZONE, DEPENDING ON VALUE OF REV).          45370040
                    IF KLUDGE IS TRUE, THE ADDRESS RETURNED IS CORRECT          45370045
                    FOR INSERTION INTO AN M2 SEGMENT DATA PATTERN;              45370050
                                                                                45370055
                    REAL JUNK1; INTEGER JUNK2;                                  45380000
                    IF BOOLEAN(FILEADDR.[1:1]) THEN                             45390000
                    MADDR:=100x((FILEADDR:=ABS(FILEADDR)) DIV 100)+             45400000
                         SZ[ZNE(FILEADDR)+3]                           %150145410000
                    ELSE                                                        45430000
                    BEGIN                                                       45440000
                         IF FORTYMILL THEN                                      45441000
                              FILEADDR:=FILEADDR-40000x                         45441100
                                   ((((FILEADDR DIV 10000) MOD 100)+4) DIV 8);  45441200
                         IF KLUGE THEN                                          45450000
                         FILEADDR:=FILEADDR MOD 1000000;                        45460000
                         JUNK1:=DECMAL(FILEADDR);                               45470000
```

```
                    IF KLUGE THEN                                          45540000
                    JUNK1:=JUNK1&DECMAL(ENTIER(OCTAL(JUNK1.[12:12])        45550000
                        MOD 4))[12:36:12];                                 45560000
                    JUNK2:=JUNK1.[12:6]+10-5×REAL(WRT);                    45570000
                    JUNK1:=JUNK1&JUNK2[12:42:6];                           45580000
                    JUNK1.[36:12]:=SZ[ZNE(FILEADDR)+9];          %150145590000
                    MADDR:=JUNK1;                                          45620000
                END;                                                       45630000
            END;                                                           45640000
%***************************************************************************45650000
    DEFINE MAINTADDR(A)=MADDR(A,FALSE)#;                          %150145660000
    DEFINE LDELTA=3#;                                             %150145670000
%***************************************************************************45680000
    STREAM PROCEDURE M2PATTERN(S,DEST,ADDRESS); VALUE ADDRESS;             45690000
        BEGIN                                                              45700000
        LOCAL SAVESI;                                                      45710000
            DI:=DEST; SI:=S;                                               45720000
            DS:=18 CHR;                                                    45730000
            SI:=SI+6; SAVESI:=SI;                                          45740000
            SI:=LOC ADDRESS;                                               45750000
            SI:=SI+2; DS:=6 CHR;                                           45760000
            SI:=SAVESI;                                                    45770000
            DS:=9 WDS;                                                     45780000
        END;                                                               45790000
%***************************************************************************45800000
    PROCEDURE FINDGOODM2PATTERN(ADDR); VALUE ADDR; INTEGER ADDR;           45810000
        BEGIN                                                              45820000
        INTEGER I,SU,EU,EA;                                                45830000
        REAL IOD,RESULT,LOCATION;                                          45840000
        LABEL XIT;                                                         45850000
%                                                                          45860000
            FILL OUTBUFFER[*] WITH                                         45870000
            "   20003",                                                    45880000
            "99990   ",                                                    45890000
            " 0000000",                                                    45900000
            "0 1.2[3(",                                                    45910000
            "0 1.2[3(",                                                    45920000
            "0 1.2[3(",                                                    45930000
            "0 1.2[3(",                                                    45940000
            "0 1.2[3(",                                                    45950000
            "EE××CC@@",                                                    45960000
            "EE××CC@@",                                                    45970000
            "EE××CC@@",                                                    45980000
            "EE××CC@@";                                                    45990000
        IOD:=COREADDR(JUNKBUFFER[0])&12[8:38:10]&                          46000000
            513[18:33:15]&1[24:47:1]&TINU[3:43:5];                         46010000
        LOCATION:=(I:=COREADDR(RESULT))&UNIT[12:42:6]&                     46020000
            1[2:47:1];                                                     46030000
        EU:=ADDR DIV 1000000;                                              46040000
        SU:=((ADDR DIV 10000) MOD 100 ) DIV 4;                   %150146050000
        EA:=(ADDR:=1000000×EU+40000×SU+SZ[ZNE(ADDR)+3])+40000;             46060000
        WHILE TRUE DO                                                      46070000
        BEGIN                                                              46080000
            JUNKBUFFER[0]:=DECIMAL(ADDR);                                  46090000
            M2PATTERN(OUTBUFFER,OUTBUFFER,MADDR(ADDR,TRUE));               46100000
            IOREQUEST(-(RESULT:=IOD)&0[25:40:8],RESULT,                    46110000
                LOCATION);                                                 46120000
            WAIT(I,IOMASK);                                                46130000
            IF RESULT.[25:8]=0 THEN                                        46140000
            BEGIN                                                  %150146141000
```

```
                    IF NOT BIGCOMPARE(12,COREADDR(OUTBUFFER),          %150146150000
                        COREADDR(JUNKBUFFER[1])) THEN                  %150146160000
                    BEGIN                                              %150146160100
                        MOVE(12,JUNKBUFFER[1],SHIFTBUFF);              %150146160200
                        GO XIT;                                        %150146160300
                    END;                                               %150146160400
                    IF CHRERR < 3 AND FSTERR < 4 THEN                  %150146170000
                    BEGIN                                                   46180000
                        MOVE(12,JUNKBUFFER[1],SHIFTBUFF);                   46190000
                        CHARACTERMOVE(2,COREADDR(SHIFTBUFF[2])&6[CTF],      46190100
                            COREADDR(SZ[ZNE(ADDR)+9])&6[CTF]);         %150146190200
                        GO XIT;                                             46200000
                    END;                                                    46210000
                    END;                                               %150146211000
                    IF ADDR:=ADDR+100 GEQ EA THEN                      %150146220000
                    BEGIN                                                   46230000
                        MOVE(12,OUTBUFFER,SHIFTBUFF);                       46240000
                        GO XIT;                                             46250000
                    END;                                                    46260000
                END;                                                        46270000
            XIT: END;                                                       46280000
%***************************************************************************46290000
    PROCEDURE COUNTUP(I);INTEGER I;                                    %150146300000
        I:=2*REAL(I > 1) + ABS((I MOD 2) - 1);                         %150146310000
%***************************************************************************46320000
    PROCEDURE ERRORANALYSIS(BUFFERNR); VALUE BUFFERNR; INTEGER              46330000
        BUFFERNR;FORWARD;                                              %150146330010
%***************************************************************************46330100
  BOOLEAN STREAM PROCEDURE CMP(A,B,SZDIV64,SZ);VALUE SZDIV64,SZ;       %150146330150
    BEGIN                                                              %150146330200
    LABEL ERR,XIT;                                                     %150146330250
    SI:=A;DI:=B;                                                       %150146330300
    SZDIV64(16(IF 32 SC NEQ DC THEN JUMP OUT 2 TO ERR));               %150146330350
    SZ(IF 8 SC NEQ DC THEN JUMP OUT TO ERR);                           %150146330400
    GO XIT;                                                            %150146330450
ERR:TALLY:=1;CMP:=TALLY;                                               %150146330500
XIT:END;                                                               %150146330550
%***************************************************************************46340000
        DEFINE COMPARE(A)=CMP(DISKLA,1],COMPAREBUFF[A-2,1],            %150146340100
                              BUFFLTH DIV 64,BUFFLTH)#;                %150146340200
%***************************************************************************46350000
 COMMENT  IO COMES IN TWO VERSIONS (NO ADDITIONAL CHARGE), ONE              46350005
        FOR REGULAR USE AND ONE FOR DEBUGGING.  THE PARAMETER               46350010
        "CODE" DETERMINES THE OPERATION TO BE PERFORMED ON                  46350015
        BUFFER NUMBER "BUFFERNR" AS FOLLOWS:                                46350020
                                                                            46350025
            CODE=1      READ                                                46350030
            CODE=2      WRITE                                               46350035
            CODE=3      CHECK READ                                          46350040
            CODE=4      CHECK WRITE                                         46350045
                                                                            46350050
        THE DEBUGGING VERSION PERFORMES NO DISK I/O,  RATHER,               46350055
        IT FILLS MESSAGE[*] WITH MESSAGES SPECIFYING THE                    46350060
        OPERATION BEING PERFORMED AND THE DISK ADDRESS ;                    46350065
 $SET OMIT=OMIT OR DEBUG                                                    46351000
    PROCEDURE IO(CODE,BUFFERNR); VALUE CODE,BUFFERNR;                       46360000
        INTEGER CODE,BUFFERNR;                                              46370000
        BEGIN                                                               46380000
        LABEL REED,W,RC,WC,XIT,FAKEOUT,LOGIT;                               46390000
        SWITCH S:=REED,W,RC,WC;                                             46400000
```

```
INTEGER JUNK,BNUM,FA;                                                  46410000
DEFINE COUNTUPERRORS=BEGIN ERROR:=ERROR+1;                             46420000
                           ERRORS:=ERRORS+1;                           46430000
                     END#;                                             46440000
STREAM PROCEDURE SHIFTIT(N,A,B,R); VALUE N,R;                          46440100
    BEGIN                                                              46440200
    LOCAL NN,RR;                                                       46440300
    SI:=LOC N; SI:=SI+6; DI:=LOC NN; DI:=DI+7; DS:=CHR;                46440400
    SI:=LOC R; SI:=SI+6; DI:=LOC RR; DI:=DI+7; DS:=CHR;                46440500
    SI:=A; DI:=B; NN(DS:=32 CHR; DS:=32 CHR); DS:=N CHR;               46440600
    SI:=A; RR(DS:=32 CHR; DS:=32 CHR); DS:=R CHR;                      46440700
    END;                                                               46440800
DEFINE                                                        %150146440900
   SHIFT(A,B)=SHIFTIT(NT1:=ENTIER((FA+1+FA DIV 3)                      46441000
            MOD(IF MAINT THEN 88 ELSE 232)),A,B,              %150146441100
            ENTIER(8*(BUFFLTH-1)-NT1))#;                      %150146441200
%                                                                      46450000
    BNUM:=BUFFERNR-2;                                                  46460000
    GO S[CODE];                                                        46470000
REED:                                                                  46480000
    IF FILEADDR:=DA[BNUM,2]LSS 0 THEN                                  46490000
    BEGIN COUNTUP(RDTOG); GO XIT; END;                                 46500000
    IOCOUNT:= IOCOUNT+1;                                               46501000
    IF WRT THEN CLEAR(DISK[BUFFERNR,0],BUFFLTH+1) ELSE                 46510000
    IF MAINT THEN M2PATTERN(SHIFTBUFF,COMPAREBUFF[BNUM,                46520000
        1],MADDR(FILEADDR,TRUE)) ELSE                                  46530000
    MOVE(BUFFLTH,COMPAREBUFF[BNUM,1],DISK[BUFFERNR,1]);                46540000
    DISK[BUFFERNR,0]:=DISK[BUFFERNR,1]:=DECIMAL(FILEADDR);             46550000
    IF DELAY > 0 THEN                                          %150146550050
    IF (NT1:=(TIME(1)-IOFT) DIV 60) LSS DELAY THEN                     46550100
        WHENN(DELAY-NT1);                                              46550200
    IOREQUEST(-(RES[BUFFERNR]:=IOD[BUFFERNR])&0[25:40:8],              46560000
        RES[BUFFERNR],LOCATION[BUFFERNR]);                             46570000
    IF SHIF THEN                                                       46580000
        SHIFT(SHIFTBUFF,COMPAREBUFF[BNUM,2]);                 %150146590000
    IF WRT OR NOT MAINT THEN                                           46600000
    COMPAREBUFF[BNUM,1]:=DECIMAL(FILEADDR);                            46610000
    IF LONGR THEN MOVE(899,COMPAREBUFF[BNUM,1],               %150146610100
        COMPAREBUFF[BNUM,2]);                                 %150146610200
    IF KWIK THEN                                              %150146610300
       FOR NT1:=1 STEP 1 UNTIL 5 DO                                    46610400
     COMPAREBUFF[BNUM,1+30*NT1]:=DECMAL(FILEADDR+NT1);                 46610500
    COUNTUP(RDTOG);                                                    46620000
    GO XIT;                                                            46630000
W:                                                                     46640000
    IF FILEADDR:=DA[BUFFERNR,0] LSS 0 THEN                             46650000
    BEGIN COUNTUP(WRTOG); GO XIT; END;                                 46660000
    IOCOUNT:= IOCOUNT+1;                                               46661000
    IF SHIF THEN                                                       46670000
        SHIFT(SHIFTBUFF,DISK[BUFFERNR,2]);                    %150146680000
    DISK[BUFFERNR,0]:=DISK[BUFFERNR,1]:=DECIMAL(FILEADDR);             46690000
    IF LONGR THEN MOVE(900,DISK[BUFFERNR,0],DISK[BUFFERNR,1])46690010
    ;                                                         %150146690020
    IF KWIK THEN                                              %150146690030
       FOR NT1:=1 STEP 1 UNTIL 5 DO                                    46690040
     DISK[BUFFERNR,1+30*NT1]:=DECMAL(FILEADDR+NT1);                    46690050
    IF DELAY > 0 THEN                                         %150146690070
    IF (NT1:=(TIME(1)-IOFT) DIV 60) LSS DELAY THEN                     46690100
        WHENN(DELAY-NT1);                                              46690200
    IOREQUEST(-(RES[BUFFERNR]:=IOD[BUFFERNR])&0                        46700000
```

```
                    [25:40:8],RES[BUFFERNR],LOCATION[BUFFERNR]);                46710000
               COUNTUP(WRTOG);                                                  46720000
               IF LONG THEN RDTOG:=WRTOG+2;                                     46730000
               GO XIT;                                                          46740000
          RC:                                                                   46750000
               IF FILEADDR:=DA[BNUM,3] LSS 0 THEN                               46760000
               GO XIT;                                                          46770000
               SEGCOUNT:= SEGCOUNT+1;                                           46771000
               IF REAL(BL(RES[BUFFERNR]) AND BL(IOMASK))=0 THEN    %150146780000
               BEGIN                                               %150146785000
                    JUNK:=LOCATION[BUFFERNR].[CF];WAIT(JUNK,IOMASK);            46790000
$SET OMIT=OMIT OR NOT TUNEUP                                       %150146795000
               END ELSE NOWAIT:=NOWAIT+1;                          %150146795010
$POP OMIT                                                          %150146795020
$SET OMIT=OMIT OR TUNEUP                                           %150146795030
               END;                                                %150146795040
$POP OMIT                                                          %150146795050
               IF DELAY > 0 THEN IOFT:=TIME(1);                    %150146795100
               IF RES[BUFFERNR].[25:8] NEQ 0 THEN                               46800000
               BEGIN                                                            46810000
          LOGIT:                                                                46810100
                    LOGBUFFER[1]:= LOGBUFFER[1]& 0[2:2:1]& 2[9:45:3];           46810200
                    LOGBUFFER[2]:= IOCOUNT;                                     46810300
                    LOGBUFFER[3]:= DECMAL(FILEADDR) &                           46810400
                                   REAL(MAINT)[43:47:1] &                       46810500
                                   REAL(TEST=1)[42:47:1];                       46810600
                    LOGBUFFER[4]:= IOD[BUFFERNR];                               46810700
                    LOGBUFFER[5]:= RES[BUFFERNR];                               46810800
                    IF IGNORERRORS OR NOISEONERROR THEN            %140346820000
                    BEGIN                                          %140346820100
                         COUNTUPERRORS;                            %140346820200
                         IF NOISEONERROR THEN WRITENOISE;          %140346820300
                         SC:=99;                                   %150146820350
                    END ELSE                                       %140346820400
                    BEGIN                                                       46830000
                         IF CODE=3 THEN                                         46831000
                         COMPAREDATA:=COMPARE(BUFFERNR );                       46840000
                         ERRORANALYSIS(BUFFERNR);                               46850000
                    END;                                                        46860000
                    LINKITUP;                                                   46861000
               END ELSE                                                         46870000
               BEGIN                                                            46880000
                    IF WRT OR MAINT THEN                                        46890000
                    IF COMPAREDATA:=COMPARE(BUFFERNR ) THEN                     46900000
                    IF TEST=1 THEN                                              46910000
                    BEGIN                                                       46920000
                         JUNKB:=BIGCOMPARE(BUFFLTH,COREADDR(DISK        %150146930000
                              [BUFFERNR,1]),                            %150146930100
                              COREADDR(COMPAREBUFF[BNUM,1]));           %150146930200
                         IF CHRERR LSS 3 THEN                           %150146930300
                         BEGIN                                                  46940000
                              FINDGOODM2PATTERN(FILEADDR);                      46950000
                              M2PATTERN(SHIFTBUFF,COMPAREBUFF                   46960000
                                   [BNUM,1],MADDR(FILEADDR,TRUE));              46970000
                              IF COMPAREDATA:=COMPARE(BUFFERNR)                 46980000
                              THEN GO FAKEOUT;                                  46990000
                         END ELSE GO FAKEOUT;                                   47000000
                    END ELSE                                                    47010000
          FAKEOUT:                                                              47020000
                    IF IGNORERRORS OR NOISEONERROR THEN            %140347030000
```

```
                    BEGIN                                                %140347030100
                        COUNTUPERRORS;                                   %140347030200
                        IF NOISEONERROR THEN WRITENOISE;                 %140347030300
                        SC:=99;                                          %150147030350
                    END ELSE                                             %140347030400
                    ERRORANALYSIS(BUFFERNR)                                   47040000
                    ELSE ELSE                                                 47050000
                    IF NOT COMPAREDATA:=COMPARE(BUFFERNR )                    47060000
                    THEN GO FAKEOUT;                                          47070000
                END;                                                          47080000
                GO XIT;                                                       47090000
            WC:                                                               47100000
                IF FILEADDR:=DA[BUFFERNR,1] LSS 0 THEN GO XIT;                47110000
                IF REAL(BL(RES[BUFFERNR]) AND BL(IOMASK))=0 THEN         %150147115000
                BEGIN                                                    %150147120000
                    JUNK:=LOCATION[BUFFERNR].[CF];WAIT(JUNK,IOMASK);          47125000
$SET OMIT=OMIT OR NOT TUNEUP                                             %150147130000
                END ELSE NOWAIT:=NOWAIT+1;                               %150147130010
$POP OMIT                                                                %150147130020
$SET OMIT=OMIT OR TUNEUP                                                 %150147130030
                END;                                                     %150147130040
$POP OMIT                                                                %150147130050
                IF DELAY > 0 THEN IOFT:=TIME(1);                         %150147130100
                IF RES[BUFFERNR].[25:8] NEQ 0 THEN GO LOGIT;              47140000
            XIT:                                                          47150000
                IF CODE=4 THEN RES[BUFFERNR]:= IOMASK;                    47160000
            END IO;                                                       47180000
$POP OMIT                                                                 47180100
$SET OMIT=OMIT OR NOT DEBUG                                               47180110
        PROCEDURE IO(CODE,BUFFERNR); VALUE CODE,BUFFERNR;                 47180200
            INTEGER CODE,BUFFERNR;                                        47180300
            BEGIN                                                         47180400
            LABEL REED,W,RC,WC,XIT,FAKEOUT;                               47180500
            SWITCH S:=REED,W,RC,WC;                                       47180600
            INTEGER JUNK,BNUM;                                            47180700
        %                                                                 47181000
            STREAM PROCEDURE SPOUT(ALF,FILEADDR,A);                       47181100
                VALUE ALF,FILEADDR;                                       47181200
                BEGIN                                                     47181300
                LOCAL I;                                                  47181400
                SI:=LOC ALF; DI:=LOC I; SI:=SI+7; DI:=DI+7; DS:=CHR;      47181500
                SI:=SI-I; SI:=SI-1; DI:=A; DS:=I CHR;                     47181600
                DS:=LIT " "; SI:=LOC FILEADDR; DS:=7 DEC; DS:=7 LIT " ";  47181700
                END;                                                      47181800
        %                                                                 47181900
            PROCEDURE OUTWITHIT(ALF); VALUE ALF; ALPHA ALF;               47182000
                BEGIN                                                     47182100
                SPOUT(ALF,FILEADDR,MESSAGE[MESSP]);                       47182200
                IF MESSP:=MESSP+2 GEQ WBUFF-1 THEN                        47182300
                    BEGIN                                                 47182400
                    WRITE(OUTFI,WBUFF-1,MESSAGE[*]);                      47182500
                    MESSP:=0;                                             47182600
                    END;                                                  47182700
                END;                                                      47182800
        %                                                                 47182900
            BNUM:=BUFFERNR-2;                                             47183000
            GO S[CODE];                                                   47183100
        REED:                                                             47183200
            IF FILEADDR:=DA[BNUM,2] LSS 0 THEN                            47183300
                BEGIN COUNTUP(RDTOG); GO XIT; END;                        47183400
```

```
            OUTWITHIT("R 2");                                    %150147183500
            COUNTUP(RDTOG);                                          47183600
            IOCOUNT:=IOCOUNT+1;                                      47183650
            GO XIT;                                                  47183700
        W:                                                           47183800
            IF FILEADDR:=DA[BUFFERNR,0] LSS 0 THEN                   47183900
                BEGIN COUNTUP(WRTOG); GO XIT; END;                   47184000
            OUTWITHIT("W 2");                                    %150147184100
            COUNTUP(WRTOG);                                          47184200
            IF LONG THEN RDTOG:=WRTOG+2;                             47184300
            IOCOUNT:=IOCOUNT+1;                                      47184350
            GO XIT;                                                  47184400
        RC:                                                          47184500
            IF FILEADDR:=DA[BNUM,3] LSS 0 THEN GO XIT;               47184600
            OUTWITHIT("RC2");                                        47184700
            SEGCOUNT:=SEGCOUNT+1;                                    47184750
            GO XIT;                                                  47184800
        WC:                                                          47184900
            IF FILEADDR:=DA[BUFFERNR,1] LSS 0 THEN GO XIT;           47185000
            OUTWITHIT("WC2");                                        47185100
            RES[BUFFERNR]:=IOMASK;                                   47185200
        XIT: END DEBUGNING IO;                                       47185300
     $POP OMIT                                                       47185400
    %*************************************************************47190000
        DEFINE W(W1)=IO(2,W1)#,                                      47200000
               REED(REED1)=IO(1,REED1)#,                             47210000
               RC(RC1)=IO(3,RC1)#,                                   47220000
               WC(WC1)=IO(4,WC1)#;                                   47230000
    %*************************************************************47240000
        PROCEDURE BREAKDOWNADDRESS;                                  47250000
            BEGIN                                                    47260000
                                                                     47260005
            COMMENT                                                  47260010
            BREAKDOWNADDRESS DETERMINES THE PHYSICAL LOCATION        47260015
            OF THE HEAD ON WHICH THE FAILURE OCCURED, AND PRINTS  %150147260020
            THAT INFORMATION ON THE OUTPUT FILE DEVICE;              47260025
                                                                     47260030
            REAL FA;                                                 47270000
            INTEGER                                                  47280000
                TRACK,                                               47290000
                C,                                                   47291000
                TR,                                                  47292000
                SU,                                                  47300000
                SET,                                                 47310000
                ZONE,                                                47320000
                PIN,                                                 47330000
                SEG,                                                 47340000
                HEAD;                                                47350000
            ALPHA FACE;                                              47360000
            LABEL HS1,HS2,HS3,HS4,FOUND;                             47361000
            SWITCH HSW:=HS1,HS2,HS3,HS4;                             47361100
            BOOLEAN EVEN;                                            47361200
            FORMAT                                                   47370000
                SUF("STORAGE UNIT",I3,X4,":",X4,"ZONE",I2,X8,":",    47380000
                    X4,"HEAD",I3),                                   47390000
                DISKF("DISK",I2,X13,":",X4,"TRACK",I3,X6,":",X4,     47400000
                      "PIN ",I2," (CENTER TAP)"),                    47410000
                FACEF(A3," FACE",X11,":",X4,"SEGMENT ",A2,X4,":");   47420000
        %                                                            47430000
            FA:=DECMAL(FILEADDR);                                    47440000
```

```
                SU:=(SET:=OCTAL(FA.[12:12])) DIV (4×DKTYPE)+1;                  47450000
                SET:=(SET MOD 4)+1;                                             47460000
                FACE:=IF (REAL((TRACK:=OCTAL(FA.[24:12])) LSS 50)+              47470000
                     REAL(SET MOD 2=1)) MOD 2=0 THEN "CW " ELSE "CCW";          47480000
                ZONE:=ZNE(FILEADDR)+1;                                          47490000
                EVEN:=TRACK MOD 2=0;                                            47500000
                C:=IF TRACK LEQ 24 THEN                                         47500100
                       IF EVEN THEN 1                                           47500200
                       ELSE 0                                                   47500300
                   ELSE                                                         47500400
                   IF TRACK LEQ 49 THEN                                         47500500
                       IF EVEN THEN 3                                           47500600
                       ELSE 2                                                   47500700
                   ELSE                                                         47500800
                   IF TRACK LEQ 74 THEN                                         47500900
                       IF EVEN THEN 1                                           47501000
                       ELSE 0                                                   47501100
                   ELSE                                                         47501200
                   IF EVEN THEN 3 ELSE 2;                                       47501300
                TR:=TRACK;                                                      47501350
                TRACK:=TRACK MOD 50;                                            47501400
                GO TO HSW[C+1];                                                 47501500
           HS1: %C=0                                                            47501600
                PIN:=TRACK DIV 2+5;                                             47501700
                HEAD:=IF ZONE = 1 THEN 1 ELSE                                   47501800
                     IF ZONE = 2 THEN 5 ELSE 11;                                47501900
                GO FOUND;                                                       47502000
           HS2: %C=1                                                            47502100
                PIN:=TRACK DIV 2 + 4;                                           47502200
                HEAD:=IF ZONE=1 THEN 2 ELSE                                     47502300
                     IF ZONE=2 THEN 8 ELSE 12;                                  47502400
                GO FOUND;                                                       47502500
           HS3: %C=2                                                            47502600
                PIN:=((TRACK-24) DIV 2)+4;                                      47502700
                HEAD:=IF ZONE=1 THEN 3 ELSE                                     47502800
                     IF ZONE=2 THEN 7 ELSE 13;                                  47502900
                GO FOUND;                                                       47503000
           HS4:  %C=3                                                           47503050
                PIN:=((TRACK-26) DIV 2)+5;                                      47503200
                HEAD:=IF ZONE=1 THEN 4 ELSE                                     47503300
                     IF ZONE=2 THEN 6 ELSE 14;                                  47503400
                GO FOUND;                                                       47503500
         FOUND:                                                                 47503600
                SEG:=IF MAINT THEN IF WRT THEN "M1" ELSE "M2" ELSE              47560000
                     FA.[36:12];                                                47570000
      %                                                                         47580000
                WRITE(OUTFI,SUF,SU,ZONE,HEAD);                                  47590000
                WRITE(OUTFI,DISKF,SET,TR,PIN);                                  47600000
                WRITE(OUTFI,FACEF,FACE,SEG);                                    47610000
           END;                                                                 47620000
      %*****************************************************************       47630000
          INTEGER STREAM PROCEDURE ANALYZEDESC(RESULT,MSGBUFFER);               47640000
           BEGIN                                                                47650000
                                                                                47650005
           COMMENT                                                              47650010
           ANALYSEDESC EXAMINES THE ERROR FIELD OF "RESULT" AND                 47650015
           FOR EACH BIT THAT IT FINDS ON IT PLACES A 6-WORD                     47650020
           MESSAGE INTO "MSGBUFFER".  ANALYZEDESC RETURNS THE                   47650025
           THE NUMBER OF ERROR BITS FOUND;                                      47650030
                                                                                47650035
```

```
SI:=RESULT; SI:=SI+4;                                                    47660000
DI:=MSGBUFFER;                                                           47670000
SKIP SB;                                                                 47680000
IF SB THEN                                                               47690000
BEGIN                                                                    47700000
     DS:=21 LIT "READCHECK ERROR - D23";                                 47710000
     TALLY:=TALLY+1;                                                     47720000
     DS:=27 LIT " ";                                                     47730000
END;                                                                     47740000
SKIP SB;                                                                 47750000
IF SB THEN                                                               47760000
BEGIN                                                                    47770000
     DS:=27 LIT "CORE ADDRESS ERROR - D22 - ";                           47780000
     DS:=11 LIT "ADDRESS = @";                                           47790000
     SI:=RESULT; SI:=SI+5; SKIP 3 SB;                                    47800000
     5(DS:=3 RESET; 3(IF SB THEN DS:=SET ELSE DS:=RESET;                 47810000
          SKIP SB));                                                     47820000
     DS:=5 LIT " ";                                                      47830000
     SI:=RESULT; SI:=SI+4; SKIP 2 SB;                                    47840000
     TALLY:=TALLY+1;                                                     47850000
END;                                                                     47860000
SKIP SB;                                                                 47870000
IF SB THEN                                                               47880000
BEGIN                                                                    47890000
     DS:=18 LIT "EU NOT READY - D21";                                    47900000
     DS:=30 LIT " ";                                                     47910000
     TALLY:=TALLY+1;                                                     47920000
END;                                                                     47930000
SKIP SB;                                                                 47940000
IF SB THEN                                                               47950000
BEGIN                                                                    47960000
     DS:=17 LIT "READ PARITY - D20";                                     47970000
     DS:=31 LIT " ";                                                     47980000
     TALLY:=TALLY+1;                                                     47990000
END;                                                                     48000000
SKIP SB;                                                                 48010000
IF SB THEN                                                               48020000
BEGIN                                                                    48030000
     DS:=17 LIT "DATA PARITY - D19";                                     48040000
     DS:=31 LIT " ";                                                     48050000
     TALLY:=TALLY+1;                                                     48060000
END;                                                                     48070000
SKIP SB;                                                                 48080000
IF SB THEN                                                               48090000
BEGIN                                                                    48100000
     DS:=2 LIT "D6";                                                     48110000
     SI:=RESULT; IF SC="3" THEN DS:=LIT "B"                              48120000
     ELSE DS:=LIT "A";                                                   48130000
     DS:=16 LIT " NOT READY - D18";                                      48140000
     DS:=29 LIT " ";                                                     48150000
     SI:=SI+5;                                                           48160000
     TALLY:=TALLY+1;                                                     48170000
END;                                                                     48180000
SKIP SB;                                                                 48190000
IF SB THEN                                                               48200000
BEGIN                                                                    48210000
     DS:=16 LIT "MEM PARITY - D17";                                      48220000
     DS:=32 LIT " ";                                                     48230000
     TALLY:=TALLY+1;                                                     48240000
END;                                                                     48250000
```

```
                SKIP SB;                                                    48260000
                IF SB THEN                                                  48270000
                BEGIN                                                       48280000
                     DS:=2 LIT "DK";                                        48290000
                     SI:=RESULT; IF SC="3" THEN DS:=LIT "B" ELSE            48300000
                     DS:=LIT "A";                                           48310000
                     DS:=11 LIT " BUSY - D16";                              48320000
                     DS:=34 LIT " ";                                        48330000
                     TALLY:=TALLY+1;                                        48340000
                END;                                                        48350000
                ANALYZEDESC:=TALLY;                                         48360000
           END;                                                             48370000
%*************************************************************************48380000
     PROCEDURE ERRORANALYSIS(BUFFERNR); VALUE BUFFERNR; INTEGER             48390000
          BUFFERNR;                                                         48400000
          BEGIN                                                             48410000
                                                                            48410005
          COMMENT                                                           48410010
          ERRORANALYSIS PERFORMS ALL ERROR ANALYSIS FOR                     48410015
          FULL OR ABREVIATED OUTPUT;                                        48410020
                                                                            48410025
          BOOLEAN V,M2,READERR,WRITERR;                                     48420000
          INTEGER X,ERRS,I,J,K,Z,OUNTP;                                     48430000
          ARRAY RTY[0:2,0:BUFFLTH];                                %150148430100
          REAL Y,RESULT,JUNK;                                               48440000
          LABEL XIT,RETRY,DISPLAY,DOIO,CHECK,OK;                            48450000
          FORMAT                                                            48460000
                FAILF(A*," FAILURE"),                                       48470000
                WRDNC(I2),                                                  48480000
                RESF("RESULT DESC. =  "),                                   48490000
                IODF("I/O DESC.     = "),                                   48500000
                RSAABF("RESULT DESC. =  SAME AS RETRY ",I1),                48510000
                IODSAAF("I/O DESC.    =  SAME AS RETRY ",I1),               48520000
                ISAABF("SAME AS RETRY ",I1),                                48530000
                INITF("RETRY=0(INITIAL FAILURE ON THIS ",                   48540000
                     "ADDRESS)"),                                           48550000
                RETRYF("RETRY=",I1),                                        48560000
                OKF("RETRY="I1,", NO ERRORS, ERROR ROUTINE ",               48570000
                    "EXITED"),                                              48580000
                XITF("ERROR ROUTINE EXITED..."),                 %150148581000
                DAF("DISK ADDRESS=",A1,A6),                                 48590000
                NOTRANSF("NO DATA TRANSFERED ON READ"),                     48600000
                NOWTRANSF("NO DATA TRANSFERED ON WRITE"),                   48610000
                WDIFF(I4," CHRS(IN",I4," WDS) DIFFER FROM ",     %150148620000
                     "WRITTEN RECORD--FIRST IN WRD",I4),         %150148630000
                M2DIFF(I3," CHRS(IN",I3," WDS) DIFFER FROM ",               48640000
                     "FACTORY-RCDED RECORD--FIRST IN ",                     48650000
                     "IN WRD",I3),                                          48660000
                M2WACT("12 WORDS RECORDED AT FACTORY WERE(",                48670000
                     A3,")-"),                                              48680000
                NOERRF(X16,"NO ERRORS"),                                    48690000
                LRDIFF(I4," CHRS(IN",I4," WDS) DIFFER FROM RETRY",I2,       48700000
                     "=-FIRST IN WORD",I4),                     %150148710000
                WACT(I3," WORDS WRITTEN WERE(",A3,")!"),        %150148720000
                RACT(I3," WORDS READ WERE(",A3,")!");           %150148730000
          SWITCH FORMAT NOCOMP:=("SAME AS WRITTEN"),                        48740000
               ("SAME AS RECORDED AT FACTORY");                             48750000
     %                                                                      48760000
          BOOLEAN OKTOG;                                           %150148770000
          DEFINE SPOUT(SPOUT1,SPOUT2)=                                      48830000
```

```
                MOVEANDWRITE(TRUE,BUFFLTH,FALSE,OUTFI,                  48840000
                     COREADDR(SPOUT1[SPOUT2,1]))#;                      48850000
          LIST                                                          48851000
                XOPT(IF BCL THEN "BCL" ELSE "INT"),                     48852000
                IL(I),                                                  48853000
                BXOPT(BUFFLTH,IF BCL THEN "BCL" ELSE "INT"),            48854000
                XL(X);                                                  48855000
          %                                                             49020000
                OUNT[0]:=OUNT[1]:=OUNTP:=-1;                            49030000
                READERR:=NOT(WRITERR:=BUFFERNR LSS 2);                  49040000
                ERROR:=ERROR+1;                                         49050000
                ERRORS:=ERRORS+1;                                       49060000
                M2:=MAINT AND NOT WRT;                                  49070000
                IF PAGE AND NOT ABREV AND ERROR GTR 1 THEN              49080000
                WRITE(OUTFI[PAGE]) ELSE                                 49090000
                IF ERROR GTR 1 THEN                                     49100000
                WRITE(OUTFI,STAR);                                      49110000
                WRITE(OUTFI[DBL]);                                      49120000
                WRITE(OUTFI[DBL],FAILF,I:=IF WRITERR THEN 5             49130000
                     ELSE 4,IF READERR THEN "READ" ELSE "WRITE");       49140000
                WRITE(OUTFI,DAF,(JUNK:=DECIMAL(FILEADDR)),[6:6],JUNK);  49150000
                WRITE(OUTFI);                                           49160000
                BREAKDOWNADDRESS;                                       49170000
                WRITE(OUTFI);                                           49180000
                IF (WRT OR MAINT) AND NOT ABREV THEN IF                 49190000
                READERR THEN                                            49200000
                IF NOT NODATA THEN                                %150149201000
                BEGIN                                                   49210000
                     WRITE(OUTFI[DBL]);                                 49220000
                     IF M2 THEN WRITE(OUTFI[DBL],M2WACT,XOPT)           49230000
                     ELSE                                               49240000
                     WRITE(OUTFI[DBL],WACT,BXOPT);                      49250000
                     SPOUT(COMPAREBUFF,BUFFERNR-2);                     49270000
                     WRITE(OUTFI[DBL]);                                 49280000
                END;                                                    49290000
                WHILE TRUE DO                                           49300000
                BEGIN                                                   49310000
          RETRY:                                                        49320000
                WRITE(OUTFI[DBL]);                                      49330000
                IF NOT ABREV THEN                                       49340000
                IF X=0 THEN WRITE(OUTFI,INITF) ELSE                     49350000
                WRITE(OUTFI,RETRYF,XL);                                 49360000
                V:=FALSE; JUNK:=(RESULT:=RES[BUFFERNR]).[3:5];          49370000
                FOR I:=0 STEP 1 UNTIL OUNTP DO                          49380000
                IF JUNK=OUNT[I].[33:15] THEN                            49390000
                BEGIN                                                   49400000
                     V:=TRUE;                                           49410000
                     WRITE(OUTFI,IODSAAF,OUNT[I].[18:15]);              49420000
                END;                                                    49430000
                IF NOT V THEN                                           49440000
                BEGIN                                                   49450000
                     WRITE(OUTBUFFER[*],IODF);                          49460000
                     OUNT[OUNTP:=OUNTP+1]:=JUNK&X[18:33:15];            49470000
                     JUNK:=IOD[BUFFERNR]&JUNK[3:43:5];                  49480000
                     EDIT(1,JUNK,OUTBUFFER[2],0,1,                      49490000
                          JUNK,TRANSLATEBUFFER,0);                      49500000
                     WRITE(OUTFI,5,OUTBUFFER[*]);                       49510000
                END;                                                    49520000
                FOR I:=0 STEP 1 UNTIL X-1 DO                            49530000
                IF RESULT=OLR[I] THEN                                   49540000
```

```
                BEGIN                                                    49550000
                     WRITE(OUTFI,RSAABF,IL);                             49560000
                     IF WRITERR THEN GO DOIO ELSE                        49570000
                     GO CHECK;                                           49580000
                END;                                                     49590000
                WRITE(OUTBUFFER[*],RESF);                                49600000
                EDIT(1,RESULT,OUTBUFFER[2],0,                            49610000
                1,JUNK,TRANSLATEBUFFER,0);                               49620000
                WRITE(OUTFI,9,OUTBUFFER[*]);                             49630000
                CLEAR(OUTBUFFER,9);                                      49640000
                IF ERRS:=ANALYZEDESC(RESULT,JUNKBUFFER)=1 GEQ 0          49650000
                THEN                                                     49660000
                FOR Y:=0 STEP 1 UNTIL ERRS DO                            49670000
                BEGIN                                                    49680000
                     MOVE(6,JUNKBUFFER[Y*6],OUTBUFFER[2]);               49690000
                     WRITE(OUTFI,6,OUTBUFFER[*]);                        49700000
                END                                                      49710000
                ELSE                                                     49720000
                WRITE(OUTFI,NOERRF);                                     49730000
                IF WRITERR AND NOT ABREV THEN GO DOIO;                   49740000
           CHECK:                                                        49750000
                IF ABREV THEN GO XIT;                                    49760000
                IF WRT OR MAINT THEN                                     49770000
                BEGIN                                                    49780000
                     IF RESULT.[33:15]=IOD[BUFFERNR].[33:15]+1 THEN      49790000
                     BEGIN                                               49800000
                          WRITE(OUTFI,NOTRANSF);                         49810000
                          IF X NEQ 3 THEN E[X]:=0;                       49820000
                          GO DOIO;                                       49830000
                END ELSE                                                 49840000
                IF COMPAREDATA THEN                                      49850000
           DISPLAY:                                                      49860000
                Z:=-1;                                                   49861000
                COMPAREDATA:=BIGCOMPARE(BUFFLTH,                %150149862000
                                        COREADDR(DISK[BUFFERNR,1]), 49862100
                                        COREADDR(COMPAREBUFF    %150149862200
                                                 [BUFFERNR-2,1]))& %150149862300
                          BL(FSTERR)[35:38:10]&                  %150149862400
                          BL(WRDERR)[25:38:10]&                  %150149862500
                          BL(CHRERR)[12:35:13];                  %150149862600
                FOR I:=0 STEP 1 UNTIL X-1 DO                             49870000
                IF REAL(COMPAREDATA)=E[I] THEN IF NOT                    49880000
                CMP(DISK[BUFFERNR,1],RTY[Z:=I,0],BUFFLTH DIV 64,         49890000
                   BUFFLTH)                                      %150149890100
                THEN                                                     49900000
                BEGIN                                                    49910000
                     WRITE(OUTBUFFER[*],RACT,BXOPT);                     49920000
                     WRITE(TESTBUFFER[*],ISAABF,IL);                     49940000
                     MOVE(2,TESTBUFFER,OUTBUFFER[3]);                    49950000
                     WRITE(OUTFI,5,OUTBUFFER[*]);                        49960000
                     IF X NEQ 3 THEN E[X]:=-REAL(COMPAREDATA);           49970000
                     GO DOIO;                                            49980000
                END;                                                     49990000
                WRITE(OUTFI);                                            50000000
                IF COMPAREDATA THEN                                      50010000
                BEGIN                                                    50020000
                     IF NOT NODATA THEN                          %150150021000
                     BEGIN                                       %150150022000
                     WRITE(OUTFI[DBL],RACT,BXOPT);                       50030000
                     SPOUT(DISK,BUFFERNR);                               50050000
```

```
                WRITE(OUTFI);                                          50060000
                END;                                                  %150150061000
                IF X NEQ 3 THEN E[X]:=REAL(COMPAREDATA);               50070000
                IF WRT THEN                                            50080000
                WRITE(OUTFI,WDIFF,DIFFL) ELSE                          50090000
                IF MAINT THEN                                          50110000
                WRITE(OUTFI,M2DIFF,DIFFL);                             50120000
                IF E[K]=0 THEN                                         50140000
                BEGIN                                                  50150000
                     K:=X; GO DOIO;                                    50160000
                END ELSE                                               50170000
                IF X NEQ 0 THEN                                       %150150179000
                BEGIN                                                 %150150179100
                V:=BIGCOMPARE(BUFFLTH,                                %150150180000
                        COREADDR(DISK[BUFFERNR,1]),                   %150150190000
                        COREADDR(RTY[K,0]));                          %150150190100
                IF X NEQ 0 THEN                                        50210000
                WRITE(OUTFI[DBL],LRDIFF,DIFFL);                       %150150220000
                END;                                                  %150150230000
                K:=X;                                                  50240000
           END ELSE                                                    50250000
           BEGIN                                                       50260000
                IF X NEQ 3 THEN E[X]:=0;                               50270000
                WRITE(OUTBUFFER[*],RACT,BXCPT);                        50280000
                WRITE(TESTBUFFER[*],NOCOMP[REAL(M2)]);                 50300000
                MOVE(4,TESTBUFFER,OUTBUFFER[3]);                       50310000
                WRITE(OUTFI,9,OUTBUFFER[*]);                           50320000
           END;                                                        50330000
           IF OKTOG THEN                                              %150150331000
              BEGIN                                                   %150150331100
                WRITE(OUTFI[DBL],XITF);GO XIT;                        %150150331200
                END;                                                  %150150331300
         END ELSE                                                      50340000
         IF COMPAREDATA THEN GO DISPLAY ELSE                          50350000
         WRITE(OUTFI,NOTRANSF);                                       50360000
    DOIO;                                                             50370000
         IF WRITERR THEN                                              50380000
         IF RESULT.[33:15]=IOD[BUFFERNR].[33:15]+1 THEN               50390000
         WRITE(OUTFI,NOWTRANSF);                                      50400000
         IF X:=(I:=X)+1=4 THEN GO XIT ELSE                            50410000
         IF READERR THEN IF E[I] GTR 0 THEN                           50420000
         MOVE(BUFFLTH,DISK[BUFFERNR,1],RTY[I,0]);                     50430000
         OLR[I]:=RESULT;                                              50440000
         IOREQUEST(-(RES[BUFFERNR]:=IOD[BUFFERNR])&0                  50450000
              [25:40:8],RES[BUFFERNR],LOCATION[BUFFERNR]);            50460000
         JUNK:=LOCATION[BUFFERNR].[33:15];                            50470000
         WAIT(JUNK,IOMASK);                                           50480000
         LOGBUFFER[5]:= REAL(BOOLEAN(LOGBUFFER[5]) OR                 50480100
                             BOOLEAN(RES[BUFFERNR]));                 50480200
         IF RES[BUFFERNR].[25:8] NEQ 0 THEN                           50490000
         BEGIN                                                        50500000
              IF READERR THEN                                         50510000
              COMPAREDATA:=COMPARE(BUFFERNR );                        50520000
              GO RETRY;                                               50530000
         END;                                                         50540000
         IF READERR THEN                                             %150150550000
            IF WRT OR MAINT THEN                                     %150150550100
              IF COMPAREDATA:=COMPARE(BUFFERNR) THEN                 %150150550200
                 GO RETRY                                            %150150550300
              ELSE                                                   %150150550400
```

```
                    GO OK                                                %150150550500
                  ELSE                                                   %150150550600
                    BEGIN                                                %150150550700
                    OKTOG:=COMPAREDATA:=COMPARE(BUFFERNR);               %150150550800
                    GO RETRY;                                            %150150550900
                    END                                                  %150150551000
                ELSE                                                     %150150551100
                GO OK;                                                   %150150551200
            END;                                                                50570000
        OK:                                                                     50580000
            WRITE(OUTFI[DBL]);                                                  50590000
            WRITE(OUTFI[DBL],OKF,XL);                                           50600000
        XIT:                                                                    50610000
            WRITE(OUTF1);                                                       50620000
            COMPAREDATA:=FALSE; SC:=99;                                  %150150630000
            LOGBUFFER[3]:= LOGBUFFER[3] & X[1:44:4];                            50631000
        END ERRORANALYSIS;                                                      50640000
%***************************************************************************50650000
        STREAM PROCEDURE GETPATERN(BUFFLTH,SHIFTBUFF,PATERN,KWIK);       %150150660000
            VALUE BUFFLTH,PATERN,KWIK;                                   %150150670000
            BEGIN                                                               50680000
            LABEL XIT;                                                          50690000
                DI:=SHIFTBUFF;                                                  50700000
                KWIK(6(DS:=8LIT"00000000";                               %150150710000
                    DS:=2RESET;DS:=2SET,DS:=2RESET;                      %150150710100
                  DS:=12LIT"1248 -+<<(.G$",                              %150150710200
                  DS:=1LIT"""",DS:=2LIT" ";                              %150150710300
                    27(DS:=8LIT"Q2$x"));                                 %150150710400
                  JUMP OUT TO XIT);                                      %150150710500
                PATERN(BUFFLTH(DS:=8LIT"Q2$x");                          %150150720000
                    JUMP OUT TO XIT);                                    %150150730000
                BUFFLTH(DS:=8LIT"E");                                    %150150730100
            XIT:                                                                50740000
            END GETSTD;                                                         50750000
%***************************************************************************50760000
        PROCEDURE GETNEWADDRESS(CODE); VALUE CODE; INTEGER CODE;                50770000
            BEGIN                                                               50780000
                                                                                50780005
            COMMENT                                                             50780010
            GETNEWADDRESS IS RESPONSIBLE FOR ALL DISK ADDRESSING                50780015
            DURING THE TESTS.  THE VALUE OF "CODE" DETERMINES                   50780020
            HOW THE DA ARRAY IS TO BE MANIPULATED AS FOLLOWS:                   50780025
                                                                                50780030
                CODE=0          SHIFT ADDRESSES 1 WORD TO THE                   50780035
                                RIGHT AND PLACE NEW ADDRESS IN                  50780040
                                THE FIRST WORD OF EACH ROW.                     50780045
                                USED FOR REVERSE ADDRESSING                     50780050
                                TESTS.                                          50780055
                CODE=1          FILLS DA[RDTOG-2,*] WITH THE                    50780060
                                NEW ADDRESS.  USED IN TEST 2.                   50780065
                CODE=2          FILLS DA[WRTOG,0] AND DA[WRTOG,1]               50780070
                                WITH NEW ADDRESS.  USED DURING                  50780075
                                WRITE PASS ON FORWARD ADDRESSING                50780080
                                TESTS.                                          50780085
                CODE=3          FILLS DA[RDTOG-2,2] AND                         50780090
                                DA[RDTOG-2,3] WITH NEW ADDRESS.                 50780095
                                USED DURING READ PASS ON                        50780100
                                FORWARD ADDRESSING TESTS.                       50780105
                CODE=4          DOES NOT ALTER DA[*,*], USED                    50780110
                                TO FIND FIRST ADDRESS TO BE                     50780115
```

```
                    TESTED.  (A CALL IS MADE WITH                    50780120
                    THIS PARAMETER PRIOR TO RUNNING                  50780125
                    ANY TEST).                                       50780130
          ;                                                          50780135
                                                                     50780140
          LABEL XIT,XIT1,XIT2,DONE,DFAKE,SKIP,LOOP,ZONEDONE,FINDOUT; 50790000
          INTEGER I,DIRECT;                                        %150150791000
          REAL JUMP;                                               %150150792000
          DEFINE ROOT=I#,INX=JUMP#;                                %150150793000
          IF CODE=4 THEN                                           %150150794000
             BEGIN                                                 %150150795000
             IF NOT(LONG OR MAINT) THEN                            %150150796000
                BEGIN                                              %150150797000
                WHILE NOT TWOT(ZONE:=ZNE(FILEADDR),ZONEWORD) DO    %150150797100
                   BEGIN                                           %150150797200
                   FILEADDR:=(100*(FILEADDR DIV 100))+SZ[ZONE+3];  %150150797300
                   IF REV THEN FILEADDR:=FILEADDR-1 ELSE           %150150797400
                   FILEADDR:=FILEADDR+SZ[ZONE];                    %150150797500
                   END;                                            %150150797600
                ZONEOFFSET:=OFFSET:=                               %150150798000
                ABS(FILEADDR-(((FILEADDR DIV 100)*100)+            %150150799000
                SZ[ZONE+                                           %150150800000
                (IF REV THEN 6 ELSE 3)]));                         %150150801000
                SFA:=0;                                            %150150802000
                DELTA:=DLTA[ZONE];                                 %150150802100
                END;                                               %150150803000
             GO TO XIT;                                            %150150804000
             END;                                                  %150150805000
          IF ADDRESSINGCOMPLETE THEN                               %150150821000
             BEGIN                                                 %150150822000
             FILEADDR:=-1;                                         %150150823000
             GO XIT1;                                              %150150824000
             END;                                                  %150150825000
          FILEADDR:=IF BL(CODE) THEN                               %150150826000
                       DA[ABS(RDTOG-3),2]                          %150150827000
                    ELSE                                           %150150828000
                       DA[ABS(WRTOG-1),0];                         %150150829000
          DIRECT:=IF REV THEN -1 ELSE 1;                           %150150830000
SKIP:                                                              %150150830500
          IF JUMPOFF NEQ 1 OR NOT LONG THEN COUNT:=COUNT+1;        %150150831000
          %                                                        %150150832000
          IF KWIK THEN                                             %150150832100
             BEGIN                                                 %150150832200
             IF FILEADDR:=FILEADDR+12 LEQ ENDADDR-5 THEN GO XIT1;  %150150832300
             IF SFA NEQ BEGINADDR THEN GO DFAKE;                   %150150832400
             IF FILEADDR:=SFA:=BEGINADDR+6 LEQ ENDADDR-5 THEN GO XIT1;  50832500
             GO DFAKE;                                             %150150832600
             END;                                                  %150150832700
          IF NOT (LONG OR MAINT) THEN                              %150150833000
             BEGIN                                                 %150150834000
             ROOT:=(FILEADDR DIV 100)*100;                         %150150835000
             DELTA:=DLTA[ZONE];                                    %150150836000
             INX:=3 + 3*REAL(REV);                                 %150150837000
LOOP:        IF ZONEOFFSET:=ZONEOFFSET+DELTA GEQ SZ[ZONE] THEN     %150150845000
                BEGIN                                              %150150846000
                IF SFA:=SFA+1=DELTA THEN                           %150150847000
                   BEGIN                                           %150150848000
ZONEDONE:          DO                                              %150150849000
                      IF ZONE:=(ZONE+3+DIRECT) MOD 3=ABS(DIRECT-1) THEN 50850000
                         ROOT:=ROOT+100*DIRECT                     %150150851000
```

```
                    UNTIL TWOT(ZONE,ZONEWORD);                          %150150852000
                    ZONEOFFSET:=OFFSET:=SFA:=0;                         %150150853000
                    DELTA:=DLTA[ZONE];                                  %150150854000
                    FILEADDR:=ROOT+SZ[ZONE+INX];                        %150150855000
                    GO TO XIT2;                                         %150150856000
                    END;                                                %150150857000
                 IF ZONEOFFSET:=OFFSET+SFA GEQ SZ[ZONE] THEN GO ZONEDONE;50858000
                 END;                                                   %150150859000
              FILEADDR:=ROOT+SZ[ZONE+INX]+(ZONEOFFSET*DIRECT);          %150150860000
XIT2:         IF REV THEN                                               %150150861000
                 IF FILEADDR < BEGINADDR THEN                           %150150862000
FINDOUT:            BEGIN                                               %150150863000
                    IF ZONEOFFSET=0 THEN GO DFAKE;                      %150150864000
                    GO LOOP;                                            %150150865000
                    END                                                 %150150866000
                 ELSE                                                   %150150867000
              ELSE                                                      %150150868000
              IF FILEADDR > ENDADDR THEN GO FINDOUT;                    %150150869000
              GO TO XIT1;                                               %150150870000
              END                                                       %150150871000
           ELSE                                                         %150150872000
           IF LONG THEN                                                 %150150873000
              BEGIN                                                     %150150874000
              IF FILEADDR:=FILEADDR+DELTA LEQ ENDADDR THEN GO TO XIT;     50874100
              IF COUNT < SEGS-1 THEN                                    %150150875000
                 BEGIN                                                  %150150876000
                 COUNTUP(JUMPOFF);                                      %150150877000
                 SFA:=FILEADDR:=SFA+JUMPOFF;                            %150150878000
                 IF LONGR THEN                                          %150150879000
                    IF BL(JUMPOFF) THEN                                 %150150880000
                       BEGIN                                            %150150881000
                       IF BL(JUMPCOUNT) THEN GO DFAKE;                  %150150882000
                       JUMPCOUNT:=1;                                    %150150883000
                       SFA:=FILEADDR:=SFA-1+                            %150150884000
                       (IF I:=(ENDADDR-BEGINADDR) MOD DELTA = 0 OR      %150150885000
                           I GEQ DELTA-LDELTA THEN DELTA DIV 2           %150150886000
                        ELSE I);                                        %150150887000
                       IF FILEADDR > ENDADDR THEN                       %150150888000
                          GO TO DFAKE;                                  %150150889000
                       END;                                             %150150890000
                 SWITCHER:=TRUE;                                        %150150891000
                 END                                                    %150150892000
              ELSE                                                      %150150893000
                 GO DFAKE                                               %150150894000
              END                                                       %150150895000
           ELSE                                                         %150150896000
              BEGIN                                                     %150150897000
              IF REV THEN                                               %150150898000
                IF FILEADDR:=FILEADDR-SZ[(ZNE(FILEADDR)+2) MOD 3] GEQ     50899000
                   JUMPOFF THEN                                         %150150899100
                    GO XIT                                              %150150900000
                 ELSE                                                   %150150901000
              ELSE                                                      %150150902000
              IF FILEADDR:=FILEADDR+SZ[ZNE(FILEADDR)] LEQ JUMPOFF THEN    50903000
                 GO XIT;                                                %150150904000
              IF JUMP:=JA[REAL(REV),JUMPCOUNT:=JUMPCOUNT+2] < 0 THEN    %150150905000
DFAKE:           BEGIN                                                  %150150906000
                 ADDRESSINGCOMPLETE:=TRUE;                              %150150907000
                 JUMPCOUNT:=0;                                          %150150908000
                 IF REV THEN                                            %150150909000
```

```
                    BEGIN                                                %150150909100
                   FILEADDR:=-1;                                         %150150909200
                    END;                                                 %150150909300
                  GO TO XIT1;                                            %150150909400
                   END                                                   %150150910000
                ELSE                                                     %150150911000
                   BEGIN                                                 %150150912000
                   FILEADDR:=JUMP;                                       %150150913000
                   JUMPOFF:=JA[REAL(REV),JUMPCOUNT+1];                   %150150914000
                   END;                                                  %150150915000
                END;                                                     %150150916000
XIT:         IF WRTLOCK THEN                                             %150150917000
                IF WRT THEN                                              %150150918000
                   IF TWOT((FILEADDR DIV 10000) MOD 100,LOCKWORD) THEN   %150150919000
                      BEGIN                                              %150150920000
                      IF CODE=4 THEN                                     %150150921000
                         FILEADDR:=(10000*(FILEADDR DIV 10000))+         %150150922000
                                   (REAL(REV)*9999);                     %150150923000
                      FILEADDR:=FILEADDR+DIRECT*(10000-SZ((ZNE(FILEADDR)   50924000
                               +3-DIRECT) MOD 3));                       %150150925000
                      GO SKIP;                                           %150150926000
                      END;                                               %150150927000
             IF NOT TWOT(ZNE(FILEADDR),ZONEWORD) THEN GO SKIP;           %150150927100
XIT1:                                                                    %150150927200
             IF CODE=0 THEN                                              %150150928000
                BEGIN                                                    %150150929000
                DA[WRTOG,3]:=DA[WRTOG,2];                                %150150930000
                DA[WRTOG,0]:=DA[WRTOG,1]:=DA[WRTOG,2]:=FILEADDR;         %150150931000
                DA[WRTOG,2]:=FILEADDR;                                   %150150931200
                END                                                      %150150932000
             ELSE                                                        %150150933000
             IF CODE=1 THEN                                              %150150934000
                BEGIN                                                    %150150935000
                DA[I:=RDTOG-2,1]:=DA[I,0];DA[I,3]:=DA[I,2];              %150150936000
                DA[I,0]:=DA[I,2]:=FILEADDR;                              %150150937000
                END                                                      %150150938000
             ELSE                                                        %150150939000
             IF CODE=2 THEN                                              %150150940000
                BEGIN                                                    %150150941000
                DA[WRTOG,1]:=DA[WRTOG,0];DA[WRTOG,0]:=FILEADDR;          %150150942000
                END                                                      %150150943000
             ELSE                                                        %150150944000
                BEGIN                                                    %150150945000
                DA[I:=RDTOG-2,3]:=DA[I,2];DA[I,2]:=FILEADDR;             %150150946000
                END;                                                     %150150947000
DONE:        END OF GETNEWADDRESS;                                       %150150948000
%************************************************************************51400000
     STREAM PROCEDURE TESTDESCRIPTION(TEST,MAINT,WRT,REV,SHIF,LONG,LL,   51410000
          OUTBUFFER,BUFFLTH); VALUE TEST,MAINT,WRT,REV,SHIF,LONG,LL,     51420000
          BUFFLTH;                                                       51430000
          BEGIN                                                          51440000
               LABEL S,WD,XIT,T,P,W,L;                                   51450000
%                                                                        51460000
               DI:=BUTBUFFER;                                            51470000
               DS:=5 LIT "TEST ";                                        51480000
               SI:=LOC TEST; DS:=2 DEC; DI:=DI-2; DS:=FILL;              51490000
               DI:=OUTBUFFER; DI:=DI+7; DS:=2 LIT " (";                  51500000
               MAINT(DS:=LIT "M"; WRT(DS:=LIT "1"; JUMP OUT 2 TO S);     51510000
                    DS:=LIT "2"; JUMP OUT TO S);                         51520000
               DS:=6 LIT "NORMAL";                                       51530000
```

```
          S:   DS:=11 LIT " SEGMENTS--";                                    51540000
               MAINT(WRT(JUMP OUT 2 TO T); DS:=24 LIT                       51550000
                    "READ-ONLY SEGMENTS TEST,");                            51560000
          T:                                                                51570000
               WRT(JUMP OUT TO L); MAINT(JUMP OUT TO L);                    51580000
               DS:=17 LIT "READABILITY TEST,";                              51590000
          L:                                                                51600000
               LL(DS:=14LIT"LONG I/O TEST,";JUMP OUT TO WD);    %150151600100
               LONG(DS:=24 LIT "SEGMENT CROSS-OVER TEST,";                  51610000
                    JUMP OUT TO WD);                                        51620000
               WRT(DS:=10 LIT "WORST CASE"; SHIF(DS:=9 LIT " SHIFTING";     51630000
                    JUMP OUT 2 TO P); DS:=9 LIT " CONSTANT");               51640000
          P:                                                                51650000
               WRT(DS:=9 LIT " PATTERN,");                                  51660000
          WD:  SI:=LOC BUFFLTH;DS:=3DEC;LL:=DI;DI:=DI-3;DS:=FILL;DI:=LL;    51670000
               DS:=4 LIT " WD ";                                            51680000
               REV(DS:=7 LIT "REVERSE"; JUMP OUT TO W);                     51690000
               DS:=7 LIT "FORWARD";                                         51700000
          W:                                                                51710000
               WRT(DS:=4 LIT " R/W"; JUMP OUT TO XIT);                      51720000
               DS:=6 LIT " READS";                                          51730000
          XIT: DS:=LIT ")"; END;                                            51740000
     %**************************************************************************51742000
        BOOLEAN PROCEDURE STOPTHETEST;                          %150151743000
           IF SC:=(SC+1) MOD 100 = 0 THEN                       %150151743100
           IF STOPPER NEQ 0 OR JUNKB:=BOOLEAN(TIME(-2)) THEN    %150151744000
              STOPTHETEST:=STOPPERCHECK(JUNKB);                 %150151745000
     %**************************************************************************51746000
        DEFINE STOPCHECK=IF STOPTHETEST THEN GO XIT#;           %150151747000
     %**************************************************************************51747050
        PROCEDURE SETIOSIZE(IOD,SIZE);VALUE SIZE;REAL IOD;INTEGER SIZE; %150151747100
           IOD:=IOD&(BUFFLTH:=SIZE)[CTSF]&((SIZE+29)DIV 30)[27:42:6];    %150151747200
     %**************************************************************************51748000
        PROCEDURE QUICKTEST;                                    %150151749000
           BEGIN                                                %150151750000
           DEFINE RD=REAL(REED)#;                               %150151750100
           %*****************************************************************51751000
           PROCEDURE FINISHQUICKTEST(REED);VALUE REED;BOOLEAN REED;     %150151752000
              BEGIN                                             %150151753000
              %                                                 %150151755000
              IF SEGS GEQ 6 THEN                                %150151756000
                 IF REED THEN                                   %150151757000
                    BEGIN                                       %150151758000
                    COUNTUP(RDTOG);RC(RDTOG);                   %150151759000
                    END                                         %150151760000
                 ELSE                                           %150151761000
                    BEGIN                                       %150151762000
                    COUNTUP(WRTOG);WC(WRTOG);                   %150151763000
                    END;                                        %150151764000
              IF NT1:=SEGS MOD 6 NEQ 0 THEN                     %150151765000
                 BEGIN                                          %150151766000
                 NT2:=2×RD;SETIOSIZE(IOD[NT2],30×NT1);          %150151767000
                 IOD[NT2].[27:6]:=ENTIER(NT1);                  %150151767100
                 DA[0,0]:=ENDADDR-ENTIER(NT1);                  %150151768000
                 MOVE(3,DA[0,0],DA[0,1]);                       %150151769000
                 IO(2-RD,NT2);                                  %150151770000
                 IO(4-RD,NT2);                                  %150151771000
                 SETIOSIZE(IOD[NT2],OLDBUFFLTH);                %150151772000
                 IOD[NT2].[27:6]:=(BUFFLTH+29) DIV 30;          %150151772100
                 END;                                           %150151773000
```

```
            ADDRESSINGCOMPLETE:=FALSE;                                  %150151774000
            SFA:=FILEADDR:=BEGINADDR;                                   %150151775000
            END;                                                        %150151776000
            %***************************************************************51777000
         LABEL KWIKWRT,KWIKREED,XIT;                                    %150151778000
         %                                                              %150151781000
         DA[0,0]:=FILEADDR;                                             %150151782000
         MOVE(3,DA[0,0],DA[0,1]);                                       %150151783000
         %                                                              %150151784000
         IF WRT AND NOT RO THEN                                         %150151785000
            IF SEGS < 6 THEN                                            %150151786000
               FINISHQUICKTEST(FALSE)                                   %150151787000
            ELSE                                                        %150151788000
               BEGIN                                                    %150151789000
               W(0);                                                    %150151790000
KWIKWRT:                                                                %150151791000
               STOPCHECK;                                               %150151792000
               GETNEWADDRESS(2);                                        %150151793000
               WC(WRTOG);                                               %150151794000
               IF ADDRESSINGCOMPLETE THEN                               %150151795000
                  BEGIN                                                 %150151796000
                  FINISHQUICKTEST(FALSE);                               %150151797000
                  DA[0,0]:=FILEADDR;                                    %150151798000
                  MOVE(3,DA[0,0],DA[0,1]);                              %150151799000
                  END                                                   %150151800000
               ELSE                                                     %150151801000
                  BEGIN                                                 %150151802000
                  W(WRTOG);                                             %150151803000
                  GO KWIKWRT;                                           %150151804000
                  END;                                                  %150151805000
               END;                                                     %150151806000
         IF SEGS < 6 THEN                                               %150151807000
            FINISHQUICKTEST(TRUE)                                       %150151808000
         ELSE                                                           %150151809000
            BEGIN                                                       %150151810000
            READ(2);                                                    %150151811000
            GETNEWADDRESS(3);                                           %150151812000
            IF ADDRESSINGCOMPLETE THEN                                  %150151813000
               BEGIN FINISHQUICKTEST(TRUE); GO XIT; END;                %150151814000
            READ(3);                                                    %150151815000
KWIKREED:                                                               %150151816000
            STOPCHECK;                                                  %150151817000
            GETNEWADDRESS(3);                                           %150151818000
            RC(RDTOG);                                                  %150151819000
            IF ADDRESSINGCOMPLETE THEN                                  %150151820000
               BEGIN                                                    %150151821000
               FINISHQUICKTEST(TRUE); GO XIT;                           %150151822000
               END;                                                     %150151823000
            READ(RDTOG);                                                %150151824000
            GO KWIKREED;                                                %150151825000
            END;                                                        %150151826000
XIT:                                                                    %150151827000
         END OF QUICKTEST ROUTINE;                                      %150151828000
      %*****************************************************************51829000
         PROCEDURE REVERSETEST;                                         %150151830000
            BEGIN                                                       %150151831000
            INTEGER I,J;                                                %150151832000
            LABEL REVLOOP,CONTINUE,XIT;                                 %150151833000
            %                                                           %150151834000
            IF MAINT THEN                                               %150151835000
```

```
            BEGIN                                                          %150151836000
            FILEADDR:=JA[1,0];                                             %150151837000
            JUMPOFF:=JA[1,1];                                              %150151838000
            END;                                                           %150151839000
         GETNEWADDRESS(4);                                                 %150151840000
         DA[0,0]:=DA[0,1]:=DA[0,2]:=FILEADDR;                              %150151841000
         DA[0,3]:=DA[1,0]:=DA[1,1]:=DA[1,2]:=DA[1,3]:=-1;                  %150151842000
         W(0);                                                             %150151843000
REVLOOP:                                                                   %150151844000
         STOPCHECK;                                                        %150151846000
         GETNEWADDRESS(0);                                                 %150151847000
         IF ADDRESSINGCOMPLETE THEN                                        %150151848000
            BEGIN                                                          %150151849000
            FOR I:=0 STEP 1 UNTIL 1 DO FOR J:=0 STEP 1 UNTIL 3 DO          %150151850000
            IF DA[I,J] GEQ 0 THEN GO CONTINUE;                             %150151851000
            GO XIT;                                                        %150151852000
            END;                                                           %150151853000
CONTINUE:                                                                  %150151854000
         W(WRTOG);                                                         %150151855000
         WC(WRTOG);                                                        %150151855100
         REED(RDTOG);                                                      %150151856000
         RC(RDTOG);                                                        %150151857000
         GO REVLOOP;                                                       %150151858000
XIT:  END OF REVERSETEST ROUTINE;                                          %150151859000
%*************************************************************************51860000
   PROCEDURE LONGTEST;                                                     %150151861000
      BEGIN                                                                %150151862000
      LABEL STARTLONGLOOP,LONGWRITE,STARTLONGREAD,LONGREAD,MAKESWITCH,     51863000
            XIT;                                                           %150151864000
   DEFINE RD=REAL(REED)#;                                                  %150151864100
   %.....................................................................51864200
   PROCEDURE FINISHLONGTEST(REED);VALUE REED;BOOLEAN REED;                 %150151864300
      BEGIN                                                                %150151864400
      IF REED THEN BEGIN COUNTUP(RDTOG);RC(RDTOG);END ELSE                 %150151864500
                   BEGIN COUNTUP(WRTOG);WC(WRTOG);END;                     %150151864600
      IF LONGR AND SWITCHER AND NOT BL(JUMPCOUNT) THEN                     %150151864700
         IF NT1:=ENTIER(SEGS MOD DELTA) GEQ DELTA-LDELTA THEN              %150151864800
            BEGIN                                                          %150151864900
            SWITCHER:=FALSE; NT2:=2×RD; SETIOSIZE(IOD[NT2],30×NT1);        %150151865000
            DA[0,0]:=ENDADDR-NT1;MOVE(3,DA[0,0],DA[0,1]);                  %150151865100
            IO(2-RD,NT2);IO(4-RD,NT2);SETIOSIZE(IOD[NT2],OLDBUFFLTH);      51865200
            END;                                                           %150151865300
      SWITCHER:=FALSE;                                                     %150151865400
      END;                                                                 %150151865500
   %.....................................................................51865600
      ENDADDR:=ENDADDR-(IF LONGR THEN 29 ELSE 1);                          %150151866000
      JUMPOFF:=1;                                                          %150151867000
      GETNEWADDRESS(4);                                                    %150151868000
      DA[0,0]:=FILEADDR;                                                   %150151869000
      MOVE(3,DA[0,0],DA[0,1]);                                             %150151870000
STARTLONGLOOP:                                                             %150151871000
      W(WRTOG);                                                            %150151872000
LONGWRITE:                                                                 %150151873000
      STOPCHECK;                                                           %150151874000
      GETNEWADDRESS(1);                                                    %150151875000
      WC(WRTOG);                                                           %150151876000
      IF SWITCHER THEN GO STARTLONGREAD;                                   %150151877000
      W(WRTOG);                                                            %150151878000
      GO LONGWRITE;                                                        %150151879000
STARTLONGREAD:                                                             %150151880000
```

```
        FINISHLONGTEST(FALSE);                                          %150151881000
        REED(RDTOG);                                                    %150151884000
        GETNEWADDRESS(1);                                               %150151885000
        IF ADDRESSINGCOMPLETE OR SWITCHER THEN GO MAKESWITCH;           %150151886000
        REED(RDTOG);                                                    %150151887000
LONGREAD:                                                               %150151888000
        STOPCHECK;                                                      %150151889000
        GETNEWADDRESS(1);                                               %150151890000
        RC(RDTOG);                                                      %150151891000
        IF ADDRESSINGCOMPLETE OR SWITCHER THEN                          %150151892000
MAKESWITCH:                                                             %150151893000
           BEGIN                                                        %150151894000
           WRTOG:=RDTOG-2;                                              %150151895000
           FINISHLONGTEST(TRUE);                                        %150151896000
           IF ADDRESSINGCOMPLETE THEN GO XIT;                           %150151899000
           GO TO STARTLONGLOOP;                                         %150151900000
           END;                                                         %150151901000
        REED(RDTOG);                                                    %150151902000
        GO LONGREAD;                                                    %150151903000
XIT:  END OF LONGTEST ROUTINE;                                          %150151904000
%***************************************************************************51905000
   PROCEDURE FORWARDTEST;                                               %150151906000
        BEGIN                                                           %150151907000
        LABEL LOOP1,STARTRDLOOP,LOOP2,FINISHUP,XIT;                     %150151908000
        %                                                               %150151909000
        IF MAINT THEN                                                   %150151910000
           BEGIN                                                        %150151911000
           FILEADDR:=JA[0,0];                                           %150151912000
           JUMPOFF:=JA[0,1];                                            %150151913000
           GETNEWADDRESS(4);                                            %150151914000
           IF TEST=1 THEN FINDGOODM2PATTERN(FILEADDR);                  %150151915000
           END                                                          %150151916000
        ELSE                                                            %150151917000
        GETNEWADDRESS(4);                                               %150151918000
        IF WRT AND NOT RO THEN                                          %150151919000
           BEGIN                                                        %150151920000
           DA[0,0]:=DA[0,1]:=FILEADDR;                                  %150151921000
           W(0);                                                        %150151922000
LOOP1:                                                                  %150151923000
           STOPCHECK;                                                   %150151924000
           GETNEWADDRESS(2);                                            %150151925000
           WC(WRTOG);                                                   %150151926000
           IF ADDRESSINGCOMPLETE THEN GO STARTRDLOOP;                   %150151927000
           W(WRTOG);                                                    %150151928000
           GO LOOP1;                                                    %150151929000
STARTRDLOOP:                                                            %150151930000
           ADDRESSINGCOMPLETE:=FALSE;                                   %150151931000
           COUNTUP(WRTOG);                                              %150151932000
           WC(WRTOG);                                                   %150151933000
           COUNT:=0;                                                    %150151934000
           IF MAINT THEN                                                %150151935000
              BEGIN                                                     %150151936000
              FILEADDR:=JA[0,0];                                        %150151937000
              JUMPOFF:=JA[0,1];                                         %150151938000
              END ELSE FILEADDR:=BEGINADDR;                             %150151939000
           GETNEWADDRESS(4);                                            %150151940000
           END;                                                         %150151941000
        DA[0,2]:=DA[0,3]:=FILEADDR;                                     %150151942000
        REED(2);                                                        %150151943000
        STOPCHECK;                                                      %150151944000
```

```
      GETNEWADDRESS(3);                                          %150151945000
      IF ADDRESSINGCOMPLETE THEN                                 %150151946000
         BEGIN RC(2);GO XIT;END;                                 %150151947000
      REED(3);                                                   %150151948000
LOOP2:                                                           %150151949000
      STOPCHECK;                                                 %150151950000
      GETNEWADDRESS(3);                                          %150151951000
      RC(RDTOG);                                                 %150151952000
      IF ADDRESSINGCOMPLETE THEN GO FINISHUP;                    %150151953000
      REED(RDTOG);                                               %150151954000
      GO LOOP2;                                                  %150151955000
FINISHUP:                                                        %150151956000
      COUNTUP(RDTOG);                                            %150151957000
      RC(RDTOG);                                                 %150151958000
XIT:  END OF FORWARDTEST ROUTINE;                                %150151959000
%*****************************************************************51960000
   PROCEDURE RUNATEST(TEST);VALUE TEST; INTEGER TEST;            %150151961000
      BEGIN                                                      %150151962000
      FORMAT                                                     %150151963000
         DASH(72("-")),                                          %150151964000
         EUF("EU ",I2,"--DISK MODEL ",A2," (",I2," MS)"),        %150151965000
         NODOF("TEST",I3," NOT PERFORMED (DISK CONFLICT)"),      %150151966000
         WRTLOCKF("TEST",I3," NOT PERFORMED (WRITE-LOCK)"),      %150151967000
         ERRORF(I6," SEGMENTS FAILED TEST"),                     %150151968000
         SEGSF(I6," SEGMENTS TESTED"),                           %150151969000
         ETEST("END OF TEST ",I2," RESULTS");                    %150151970000
      INTEGER I,REPEAT;                                          %150151971000
      REAL JUNK;                                                 %150151972000
      BOOLEAN STOPTOG;                                           %150151973000
      %*************************************************************51974000
      PROCEDURE EXPAND(A,RSIZE); VALUE RSIZE; REAL RSIZE; ARRAY A[0];   51975000
         BEGIN                                                   %150151976000
         SAVE ARRAY B[0:RSIZE];                                  %150151977000
         DEFINE                                                  %150151978000
            FTC=SI:=SI+3;DI:=DI+5;SKIP 3DB;                      %150151979000
            15(IF SB THEN DS:=SET ELSE DS:=RESET;SKIP SB)#,      %150151980000
            CTF=SI:=SI+5;DI:=DI+3;SKIP 3SB;                      %150151981000
            15(IF SB THEN DS:=SET ELSE DS:=RESET;SKIP SB)#;      %150151982000
         %.....................................................51983000
         STREAM PROCEDURE CHANGEVECTORS(A,B);                    %150151984000
            BEGIN LOCAL MOMA,MOMB;                               %150151985000
            SI:=LOC A;DI:=LOC MOMA;FTC;                          %150151986000
            SI:=LOC B;DI:=LOC MOMB;FTC;                          %150151987000
            SI:=LOC MOMB;DI:=LOC A;CTF;                          %150151988000
            SI:=LOC MOMA;DI:=LOC B;CTF;                          %150151989000
            SI:=LOC B;DI:=MOMA;DS:=WDS;                          %150151990000
            SI:=LOC A;DI:=MOMB;DS:=WDS;                          %150151991000
            END OF CHANGEVECTORS;                                %150151992000
         %.....................................................,51993000
         CHANGEVECTORS(A,B);                                     %150151994000
         END;                                                    %150151995000
      %*************************************************************51996000
      LABEL LOOP,GIVITUP,XIT,ABORT,CONFLICT;                     %150151997000
      %                                                          %150151998000
      COMMENT                                                    %150151999000
      THE FOLLOWING CODE SETS UP THOSE VARIABLES WHICH WILL NOT  %150152000000
      NEED REINITIALIZING BETWEEN EXECUTIONS OF THE TEST;        %150152001000
      %                                                          %150152002000
      MAINT:=TEST=1 OR 3 < TEST < 8;                             %150152003000
      WRT:=TEST GEQ 2 AND TEST MOD 10 NEQ 3;                     %150152004000
```

```
        IF NOT MAINT AND WRT AND NOWRT THEN                                  %150152005000
           BEGIN                                                             %150152006000
CONFLICT:                                                                    %150152006100
           WRITE(OUTFI,DASH);                                                %150152007000
           WRITE(OUTFI,NODOF,TESTL);                                         %150152008000
           WRITE(OUTFI,DASH);                                                %150152009000
           GO ABORT;                                                         %150152010000
           END;                                                              %150152011000
        IF WRT AND WRTLOCK THEN                                              %150152012000
           IF NOT MAINT THEN                                                 %150152013000
GIVITUP:      BEGIN                                                          %150152014000
              WRITE(OUTFI,DASH);                                             %150152015000
              WRITE(OUTFI,WRTLOCKF,TESTL);                                   %150152016000
              WRITE(OUTFI,DASH);                                             %150152017000
              GO ABORT;                                                      %150152018000
              END                                                            %150152019000
           ELSE                                                              %150152020000
              BEGIN                                                          %150152021000
              I:=JA[0,0];                                                    %150152022000
              WHILE TWOT((I DIV 10000) MOD 100, LOCKWORD) DO I:=I+10000;      52023000
              IF (I DIV 10000)x10000 GTR ENDADDR THEN GO GIVITUP;            %150152024000
              END;                                                           %150152025000
        IF (NT1:=TESTARRAY[TESTINX]) < 0 THEN                                %150152026000
           BEGIN                                                             %150152027000
           ABREV:=FALSE;                                                     %150152028000
           IGNORERRORS:=NOT(NOISEONERROR:=BL(NT1.[2:1]));                    %150152029000
           END                                                               %150152030000
        ELSE                                                                 %150152031000
           BEGIN                                                             %150152032000
           IGNORERRORS:=NOISEONERROR:=FALSE;                                 %150152033000
           ABREV:=BL(NT1,[2:1]);                                             %150152034000
           END;                                                              %150152035000
        REV:=4 < TEST < 12 AND TEST MOD 2=1;                                 %150152036000
        SHIF:=TEST=6 OR TEST=7 OR TEST=10 OR TEST=11;                        %150152037000
        REPEAT:=NT1.[CF];                                                    %150152038000
        DELAY:=NT1.[18:9];                                                   %150152039000
        RO:=BL(NT1.[4:1]);                                                   %150152039100
        NODATA:=BL(NT1).[3:1];                                               %150152039200
        IF TEST MOD 10 = 3 THEN                                              %150152039300
           IF NOWRT THEN                                                     %150152039400
              IF NOT (NOISEONERROR OR IGNORERRORS OR ABREV OR NODATA) THEN52039500
                 GO CONFLICT;                                                %150152039600
        LONG:=TEST=2 OR LONGR:=TEST=12;                                      %150152040000
        KWIK:=TEST > 12;                                                     %150152041000
        BUFFLTH:=IF LONGR THEN 900 ELSE IF LONG THEN 45 ELSE                 %150152042000
                 IF MAINT THEN 12  ELSE IF KWIK THEN 180 ELSE 30;            %150152043000
        IF OLDBUFFLTH NEQ BUFFLTH THEN                                       %150152044000
           BEGIN                                                             %150152045000
           FOR I:=0 STEP 1 UNTIL 1 DO EXPAND(COMPAREBUFF[I,*],BUFFLTH);      52046000
           FOR I:=0 STEP 1 UNTIL 3 DO EXPAND(DISK[I,*],BUFFLTH);             %150152047000
           EXPAND(SHIFTBUFF,BUFFLTH);                                        %150152048000
           OLDBUFFLTH:=BUFFLTH;                                              %150152049000
           END;                                                              %150152050000
        DELTA:=IF LONG THEN ((BUFFLTH + 29) DIV 30) + LDELTA ELSE 6;         %150152051000
        FOR I:=0 STEP 1 UNTIL 2 DO                                           %150152054000
           DLTA[I]:=                                                         %150152055000
$SET OMIT=OMIT OR NOT TUNEUP                                                 %150152056000
                 IF SDELTA > 0 THEN SDELTA ELSE                              %150152057000
$POP OMIT                                                                    %150152058000
                 IF REV THEN                                                 %150152059000
```

```
                    SZ[I] DIV (IF FORTYMILL THEN 3 ELSE 6)          %150152059100
                  ELSE 1+3;                                         %150152059200
          IOD[0]:=(COREADDR(DISK[0,0]))&BUFFLTH[8:38:10]&            %150152061000
                (I:=((BUFFLTH+29) DIV 30 + 512))[18:33:15]&TINU[3:43:5];  52062000
          IOD[1]:=IOD[0]&COREADDR(DISK[1,0])[CTC];                  %150152063000
          IOD[2]:=IOD[0]&COREADDR(DISK[2,0])[CTC]&1[24:47:1];       %150152064000
          IOD[3]:=IOD[2]&COREADDR(DISK[3,0])[CTC];                  %150152065000
          JUNK:=COREADDR(RES);                                      %150152066000
          FOR I:=0 STEP 1 UNTIL 3 DO                                %150152067000
             LOCATION[I]:=(JUNK+I)&UNIT[12:42:6]&1[2:47:1];         %150152068000
          IF NOT LONGR THEN                                         %150152069000
             GETPATERN(BUFFLTH+1,SHIFTBUFF,WRT,KWIK);               %150152070000
          IF NOT SHIF OR LONGR THEN                                 %150152071000
             BEGIN                                                  %150152072000
             MOVE(BUFFLTH,SHIFTBUFF,DISK[0,1]),                     %150152073000
             MOVE(BUFFLTH,SHIFTBUFF,DISK[1,1]);                     %150152074000
             IF (NOT MAINT) OR WRT THEN                             %150152075000
                BEGIN                                               %150152076000
                MOVE(BUFFLTH,SHIFTBUFF,COMPAREBUFF[0,1]);           %150152077000
                MOVE(BUFFLTH,SHIFTBUFF,COMPAREBUFF[1,1]);           %150152078000
                END;                                                %150152079000
             END;                                                   %150152080000
          SZ[10]:="25"; SZ[11]:="58";                               %150152080100
          LOGBUFFER[1]:=LOGBUFFER[1]&0[2:2:1]&1[9:45:3]&TEST[12:42:6]; %150152081000
          LOGBUFFER[2]:=OCTAL(TIME(0));                             %150152082000
          LOGBUFFER[3]:=BEGINADDR&(SEGS+1)[3:28:20];                %150152083000
          LOGBUFFER[4]:=ICCOUNT;                                    %150152084000
          LOGBUFFER[5]:=ERRORS;                                     %150152085000
          LINKITUP;                                                 %150152086000
    LOOP:                                                           %150152087000
                                                                    %150152088000
          COMMENT BEGINNING OF TEST EXECUTION-RETURN HERE TO START AGAIN;  52089000
                                                                    %150152090000
          WRITE(OUTFI[DBL]);                                        %150152091000
          RDTOG:=2; WRTOG:=0;                                       %150152092000
          WRITE(OUTFI);                                             %150152093000
          CLEAR(OUTBUFFER,9);                                       %150152094000
          TESTDESCRIPTION(TEST,MAINT,WRT,REV,SHIF,LONG,LONGR,OUTBUFFER,%150152095000
                          BUFFLTH);                                 %150152096000
          WRITE(OUTFI,9,OUTBUFFER[*]);                              %150152097000
          WRITE(OUTFI,DASH);                                        %150152098000
          WRITE(OUTFI[DBL]);                                        %150152099000
          WRITE(OUTFI[DBL],EOF,BEGINADDR DIV 1000000,               %150152100000
                IF FORTYMILL THEN "18" ELSE "1 ",20xDKTYPE);        %150152101000
          ERROR:=COUNT:=SC:=0;                                      %150152102000
          COMPAREDATA:=ADDRESSINGCOMPLETE:=FALSE;                   %150152103000
          RES[0]:=IOMASK;MOVE(3,RES[0],RES[1]);                     %150152104000
          SFA:=FILEADDR:=IF REV THEN ENDADDR ELSE BEGINADDR;        %150152105000
          STOPCHECK;                                                %150152106000
    $SET  OMIT=OMIT OR NOT TUNEUP                                   %150152106050
          ETM:=TIME(1); IOT:=TIME(3);                               %150152106100
    $POP  OMIT                                                      %150152106150
          IF REV THEN                                               %150152107000
             REVERSETEST                                            %150152108000
          ELSE                                                      %150152109000
          IF LONG THEN                                              %150152110000
             LONGTEST                                               %150152111000
          ELSE                                                      %150152112000
          IF KWIK THEN                                              %150152113000
             QUICKTEST                                              %150152114000
```

```
        ELSE                                                                %150152115000
        FORWARDTEST;                                                        %150152116000
    XII:                                                                    %150152117000
     $SET OMIT=OMIT OR NOT DEBUG                                            %150152118000
        IF MESSP NEQ 0 THEN                                                 %150152119000
           BEGIN                                                            %150152120000
           WRITE(OUTFI[DBL],MESSP,MESSAGE[*]);                              %150152121000
           MESSP:=0;                                                        %150152122000
           END;                                                             %150152123000
     $POP OMIT                                                              %150152124000
        IF STOPPER NEQ 0 THEN                                               %150152125000
           BEGIN                                                            %150152126000
           FOR I:=0 STEP 1 UNTIL 3 DO                                       %150152127000
              BEGIN JUNK:=LOCATION[I].[CF];WAIT(JUNK,IOMASK);END;           %150152128000
           STOPTOG:=TRUE;                                                   %150152129000
           REPEAT:=0;                                                       %150152130000
           STOPPER:=REAL(STOPPER=3);                                        %150152131000
           END;                                                             %150152132000
        IF LONG THEN ENDADDR:=ENDADDR+(IF LONGR THEN 29 ELSE 1);            %150152133000
        IF ERROR > 0 THEN                                                   %150152134000
           IF PAGE THEN                                                     %150152135000
              WRITE(OUTFI[PAGE])                                            %150152136000
           ELSE WRITE(OUTFI,STAR);                                          %150152137000
     $SET OMIT=OMIT OR NOT TUNEUP                                           %150152137050
        WRITE(OUTFI,<"NOWAIT=",I8>,NOWAIT);                                 %150152137100
        NOWAIT:=0;                                                          %150152137200
        WRITE(OUTFI,<"ELAPSED TIME =",F10.1," SECONDS">,                    %150152137300
                    (TIME(1) - ETM)/60);                                    %150152137400
        WRITE(OUTFI,<"I/O TIME =",F10.1," SECONDS">,                        %150152137500
                    (TIME(3) - IOT)/60);                                    %150152137600
     $POP OMIT                                                              %150152137650
        WRITE(OUTFI,SEGSF,SEGCOUNT);SEGCOUNT:=0;                            %150152138000
        WRITE(OUTFI,ERRORF,ERRORL);                                         %150152139000
        WRITE(OUTFI,ETEST,TESTL);                                           %150152140000
        IF REPEAT:=REPEAT-1 > 0 THEN GO LOOP;                               %150152141000
                                                                            %150152142000
        LOGBUFFER[1]:=LOGBUFFER[1]&0[2:2:1]&3[9:45:3];                      %150152143000
        LOGBUFFER[2]:=OCTAL(TIME(0));                                       %150152144000
        LOGBUFFER[4]:=IOCOUNT;                                              %150152145000
        LOGBUFFER[5]:=ERRORS;                                               %150152146000
        LINKITUP;                                                           %150152147000
                                                                            %150152148000
    ABORT:                                                                  %150152149000
        IF OUTSWITCH NEQ 1 THEN WRITE(OUTFI[PAGE]);                         %150152150000
        IF BL(STOPPER) AND STOPTOG THEN                                     %150152151000
           BEGIN DATIME;GO EXIT;END;                                        %150152152000
        STOPTOG:=FALSE;                                                     %150152153000
        END OF RUNATEST;                                                    %150152154000
     $SET OMIT=OMIT OR NOT DEBUG                                                54020100
     $POP OMIT                                                                  54020700
    %***************************************************************************54360000
        PROCEDURE SETUPMAINT;                                                   54370000
                                                                                54370005
            COMMENT  SETS UP JA[*,*].  JA[0,*] CONTAINS ADDRESS                 54370010
                     PAIRS FOR FORWARD ADDRESSING.  JA[1,*] CONTAINS            54370015
                     ADDRESS PAIRS FOR REVERSE ADDRESSING;                      54370020
                                                                                54370025
            BEGIN                                                               54380000
            INTEGER EU,BSU,ESU,A1,A2,A3,I,EA,BA,RBA,FEA;                        54390000
            LABEL WRAPUP,COLLECT;                                               54400000
```

```
%
                                                                    54410000
        BA:=MAINTADDR(-BEGINADDR);                                  54420000
        FEA:=MAINTADDR(-ENDADDR);                                   54430000
        REV:=TRUE;                                                  54440000
        RBA:=MAINTADDR(-BEGINADDR);                                 54450000
        EA:=MAINTADDR(-ENDADDR);                                    54460000
        BSU:=(((BA DIV 10000)MOD 100) DIV 8);                       54470000
        ESU:=(((EA DIV 10000)MOD 100)DIV 8);                        54480000
        EU:=BA DIV 1000000;                                         54490000
        IF SEGS LSS 40000 OR NOT FORTYMILL THEN                     54500000
        BEGIN                                                       54510000
            JA[0,0]:=BA; JA[0,1]:=FEA;                              54520000
            JA[1,0]:=EA; JA[1,1]:=RBA;                              54530000
        END ELSE                                                    54540000
        BEGIN                                                       54550000
            IF A1:=(1000000×EU+80000×BSU+40000) GTR BA THEN         54560000
            BEGIN                                                   54570000
                JA[0,0]:=BA; JA[0,1]:=BA+39999;                     54580000
            END ELSE                                                54590000
            BEGIN                                                   54600000
                JA[0,0]:=BA; JA[0,1]:=A1+39999;                     54610000
            END;                                                    54620000
            IF A2:=(1000000×EU+80000×ESU+39999) LSS EA              54630000
            THEN                                                    54640000
            BEGIN                                                   54650000
                JA[1,0]:=EA; JA[1,1]:=EA-39999;                     54660000
            END ELSE                                                54670000
            BEGIN                                                   54680000
                JA[1,0]:=EA; JA[1,1]:=A2-39999;                     54690000
            END;                                                    54700000
            A1:=A1+40000; A2:=A2-40000;                             54710000
            IF A1 GTR EA THEN GO WRAPUP ELSE                        54720000
            FOR I:=2 STEP 2 WHILE TRUE DO                           54730000
            BEGIN                                                   54740000
                IF A1+80000 GTR EA THEN GO COLLECT;                 54750000
                JA[0,I]:=A1; JA[0,I+1]:=A1+39999;                   54760000
                JA[1,I]:=A2; JA[1,I+1]:=A2-39999;                   54770000
                A1:=A1+80000;                                       54780000
                A2:=A2-80000;                                       54790000
            END;                                                    54800000
        COLLECT:                                                    54810000
            IF EA GTR A3:=(1000000×EU+80000×ESU+39999) THEN         54820000
            BEGIN                                                   54830000
                JA[0,I]:=A1; JA[0,I+1]:=A3;                         54840000
            END ELSE                                                54850000
            BEGIN                                                   54860000
                JA[0,I]:=A1; JA[0,I+1]:=FEA;                        54870000
            END;                                                    54880000
            IF A3:=(1000000×EU+80000×BSU+40000) GTR BA THEN         54890000
            BEGIN                                                   54900000
                JA[1,I]:=A2; JA[1,I+1]:=A3;                         54910000
            END ELSE                                                54920000
            BEGIN                                                   54930000
                JA[1,I]:=A2; JA[1,I+1]:=RBA;                        54940000
            END;                                                    54950000
        END;                                                        54960000
    WRAPUP:                                                         54970000
        JA[0,I:=I+2]:=JA[1,I]:=-1;                                  54980000
        REV:=FALSE;                                                 54990000
END;                                                                55000000
```

```
%*************************************************************************55010000
          WRT:=SHIF:=MAINT:=REV:=LONG:=SWITCHER:=ADDRESSINGCOMPLETE:=    55011000
          COMPAREDATA:=ABREV:=IGNORERRORS:=NOISEUNERROR:=FALSE;    %140 55012000
          SFA:=BUFFLTH:=JUMPOFF:=JUMPCOUNT:=                       %150 55013000
 $SET OMIT=OMIT OR NOT TUNEUP                                      %150 55013040
          NOWAIT:=                                                 %150 55013050
 $POP OMIT                                                         %150 55013060
 $SET OMIT=OMIT OR NOT DEBUG                                           55013100
          MESSP:=0;                                                    55013200
 $POP OMIT                                                             55013300
          WRTOG:=0;                                                    55014000
      COMMENT: THE ABOVE STATEMENTS ARE INCLUDED TO INSURE             55015000
               THAT ALL VARIABLES IN THIS BLOCK ARE PROPERLY           55016000
               INITIALIZED - THIS IS NECESSARY BECAUSE THE             55017000
               VARIABLES OCCUPY THE SAME PRT LOCATIONS AS              55018000
               AS DO VARIBLES LOCAL TO THE SCAN BLOCK;                 55019000
          IF FORTYMILL:=DKTYPE=2 THEN                                  55020000
          BEGIN                                                        55030000
               SZ[0]:=25; SZ[1]:=33; SZ[2]:=42; SZ[4]:=25;             55040000
               SZ[5]:=58; SZ[6]:=24; SZ[7]:=57; SZ[8]:=99;        %150 55050000
          END ELSE                                                     55060000
          BEGIN                                                        55070000
               SZ[0]:=24; SZ[1]:=32; SZ[2]:=44; SZ[4]:=24;             55080000
               SZ[5]:=56; SZ[6]:=23; SZ[7]:=55; SZ[8]:=99;        %150 55090000
          END;                                                         55100000
          LOGBUFFER[1]:= -0 & 2[18:46:2] & MIX[20:43:5];               55100100
          OLDBUFFLTH:=12;                                            %150 55100200
          IOCOUNT:= 0;                                                 55100300
          FOR TEST:=1,4,5,6,7 DO                                       55130000
          IF TWOT(TEST,TESTMASK OR ROMASK) THEN                      %150 55140000
          BEGIN SETUPMAINT; GO RUNTESTS; END;                          55150000
      RUNTESTS:                                                        55160000
          FOR TESTINX:=0 STEP 1 UNTIL 63 DO                            55170000
          IF NT1:=TESTARRAY[TESTINX]=REAL(NOT FALSE) THEN              55170100
               TESTINX:=64 ELSE                                        55170200
          IF NT1.[CF] NEQ 0 THEN                                       55180000
               RUNATEST(TEST:=NT1.[27:6]);                             55190000
 $POP OMIT                                                             55190100
          IF NOT DONETOG THEN GO TO RETURN;                          %150 55200000
      END;                                                             55210000
%#########END OF DISK TEST BLOCK#####################################55220000
      ALLDONE:                                                         55230000
          IF NOT FILEOPENED THEN GO EXIT;                              55240000
          WRITE(OUTFI[DBL],DONETESTS);                                 55250000
          DATIME;                                                      55260000
      EXIT: END ONLINE MAINTENANCE ROUTINES.                           55270000
END;END.        LAST CARD ON ORDING TAPE                               99999999
Q2S×Q2S×Q2S×Q2S×Q2S×Q2S×Q2S×Q2S×Q2S×Q2S×Q2S×Q2S×Q2S×Q2S×Q2S×Q2S×Q2S×Q2S×Q2S×Q2S×Q2S×
```

LABEL 000000000PRINTER0017509BCC EXECUTE OBJECT/READ;FILE SOURCEFILE=SYMBOL/OLMAINT;END+ OBJECT /READ