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JSC-11838
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"AS-BUILT" DESIGN SPECIFICATION
FOR
METRO DATA EDIT PROGRAM

Job Order 71-693

(TIRF 76-0061)

(E80-10201) AS-BUILT DESIGN SPECIFICATION FOR METRO DATA EDIT PROGRAM (Lockheed Electronics Co.) 43 p HC A03/MF A01 N80-29781

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Contract NAS 9-15200
For
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National Aeronautics and Space Administration
LYNDON B. JOHNSON SPACE CENTER
Houston, Texas

December 1976

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CONTENTS

1. SCOPE

1.1 GENERAL

This specification establishes the design for the program, MDEP Metro Data Edit Program.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein:

- TIRF 76-0061

3. SYSTEM DESCRIPTION

3.1 HARDWARE DESCRIPTION

N/A

3.2 SOFTWARE DESCRIPTION

The purpose of this program is to provide a means of editing the Metro Data Tape.

3.2.1 SOFTWARE COMPONENT NO. 1 (MDEP)

a. Software Main Program MDEP

- Software subroutine LIST
- Software subroutine EDIT
- Software subroutine RLHM
- Software subroutine REDHED
- Software subroutine GETCO
- Software subroutine POP1
- Software subroutine POP2
- Software subroutine POP3
- Software subroutine SEP
- Software subroutine GETEXP

3.2.1.1 Inputs

a. Metro Data Tape

b. MDEP Control Cards

- LSTI - give a sequenced listing of the input tape.
- LSTØ - give a sequenced listing of the output tape.
- EDIT - edit the input tape and write to a new tape.
  - Copy ±N - edit instruction to copy /N/ lines to tape. If N<0, the change cards are read here.
  - DELE N - DELE thru N lines.
  - RETN - return to calling routine.
- EXIT - terminate the job.
- REWI - rewind the input tape.
- REWØ - rewind the output tape.
- EØFØ - write a file mark on the output tape.
- CØPL - print sequenced listing of input tape. Copy to output tape with corrected rel. hum.
- SKRI N - skip N records on the input tape.
- SKRØ N - skip N records on the output tape.
- SKFI N - skip N files on the input tape.
- SKFØ N - skip N files on the output tape.
- HEDI - read the header record on the input tape.
- HEDØ - read the header record on the output tape.
- SHLI - get a short listing on the input tape.
- SHLØ - get a short listing on the output tape.
- PAUZ - pause.

c. Change Cards (2 sample decks provided)

```
 F    N J              Deck 1
REWI
REWO
COPL    1
PAUZ
EOFO
COPL    2
PAUZ
EOFO
EDIT
1611 76
COPY  9999
EOFO
REWI
REWO
LSTI    3
REWI
LSTO    1
LSTO    2
LSTO    3
REWO
EXIT
```

NOTE:

F = Function code and goes into columns 1-4.

N = NUM goes into columns 5-6, right justified when required. (NUM=number of times IO performing the function such as skipping files and records.)

J = KOPIN goes into columns 7-8, right justified when required. (J=print option, and must be input for all list options LSTI, LSTO, COPL, J=1,2, or 3 when used.

If the edit function is executed, the next card must be a date card of the form DDMMYY in col. 1-6. Two edit functions COPY and DELE must have the line numbers right justified in col. 5-10. If data is to be changed, a copy is used with a negative line number. In this case, the following procedure must be followed

CARD 1 INTEGER

Col.	Contents
1-5	*L = line number to change
6-10	N = number of changes per line L.
N cols of 5	indices of the data in line L to change. Value is 1-22 and may require two cards.

CARD 2 (FL. PT.)

Col.	Contents
1-5	Change data for first index
N cols	Change data for Nth index

*NOTE: Read a negative when all corrections per a copy is performed. Please note the explanation of the Deck 2 setup.

DECK 2

CARD	COL. 1
1	REWI
2	REWO
3	EDIT
4	161176
5	COPY -19
6	1 3 6 11 14
7	770.3 13.1 20.4
8	2 3 6 11 14
9	770.8 13.6 20.9
10	5 4 6 8 11 14
11	770.8 55.4 13.1 20.4
12	-6 1 8
13	55.4
14	DELE 20
15	COPY 40
16	DELE 100
17	COPY 9999
18	EDED
19	REWI
20	REWO
21	LSTO 1
22	REWO
23	EXIT

EXPLANATION OF DECK 2

CARD	EXPLANATION
1	Rewind the input tape.
2	Rewind the output tape.
3	Read the input tape, delete or modify portions of it, and write to an output tape.
4	16th day of the 11th month of the year 1976 will be on the new tape.
5	Copy thru line 19. The ("-") indicates changes are expected.
6	Line one will be changed. Three words of line 1 will be changed. These three words are the sixth, eleventh and fourteenth.
7	word (6) = 770.3, word (11) = 13.1, word (14) = 20.4
8	Same as 6 above, but applies to line 2.
9	The 6th, 11th, and 14th words of line 2 = 770.8, 13.6 and 20.9 respectively.
10	Same as 6 above, but applies to line 5 and 4 changes will be made including the fourteenth word.
11	The 6th, 8th, 11th and 14th words of line 5 = 770.8, 55.4, 13.1, and 20.4 respectively.
12	Line 6 will be changed, the ("-") is a flag to quit reading change cards for this change operation. One change is made to the 8th word.
13	The 8th word of line 6 = 55.4
14	Delete from the present line + 1 thru line 20 (this deletes only line 20).
15	Copy from present line + 1 thru line 40 (this copies lines 21 thru 40 without changes.
16	Deletes lines 41 thru 100.
17	Copy the remainder of the file without changes.
18	Write a file mark on the output tape.
19	Rewind the input tape.
20	Rewind the output.
21	List the output tape with option 1 format.
22	Rewind the output tape.
23	Terminate the job.

3.2.1.2 Outputs

a. Line printer listing.
b. Corrected Metro Data Tape.

3.2.1.3 Storage Requirements

a. 1579 words

3.2.1.4 Description

N/A

3.2.1.5 Flowchart

See Appendix A.

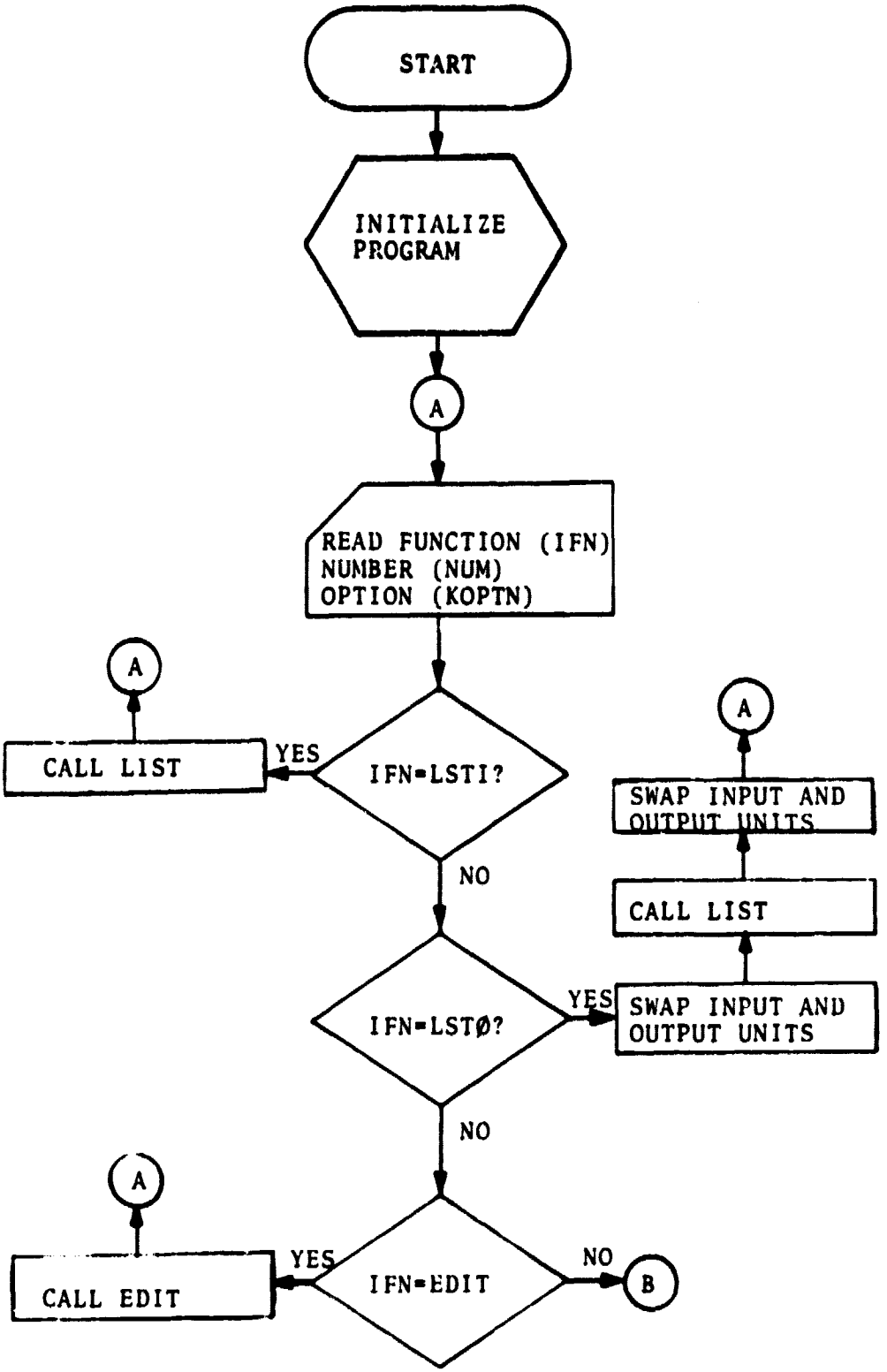
3.2.1.6 Listing

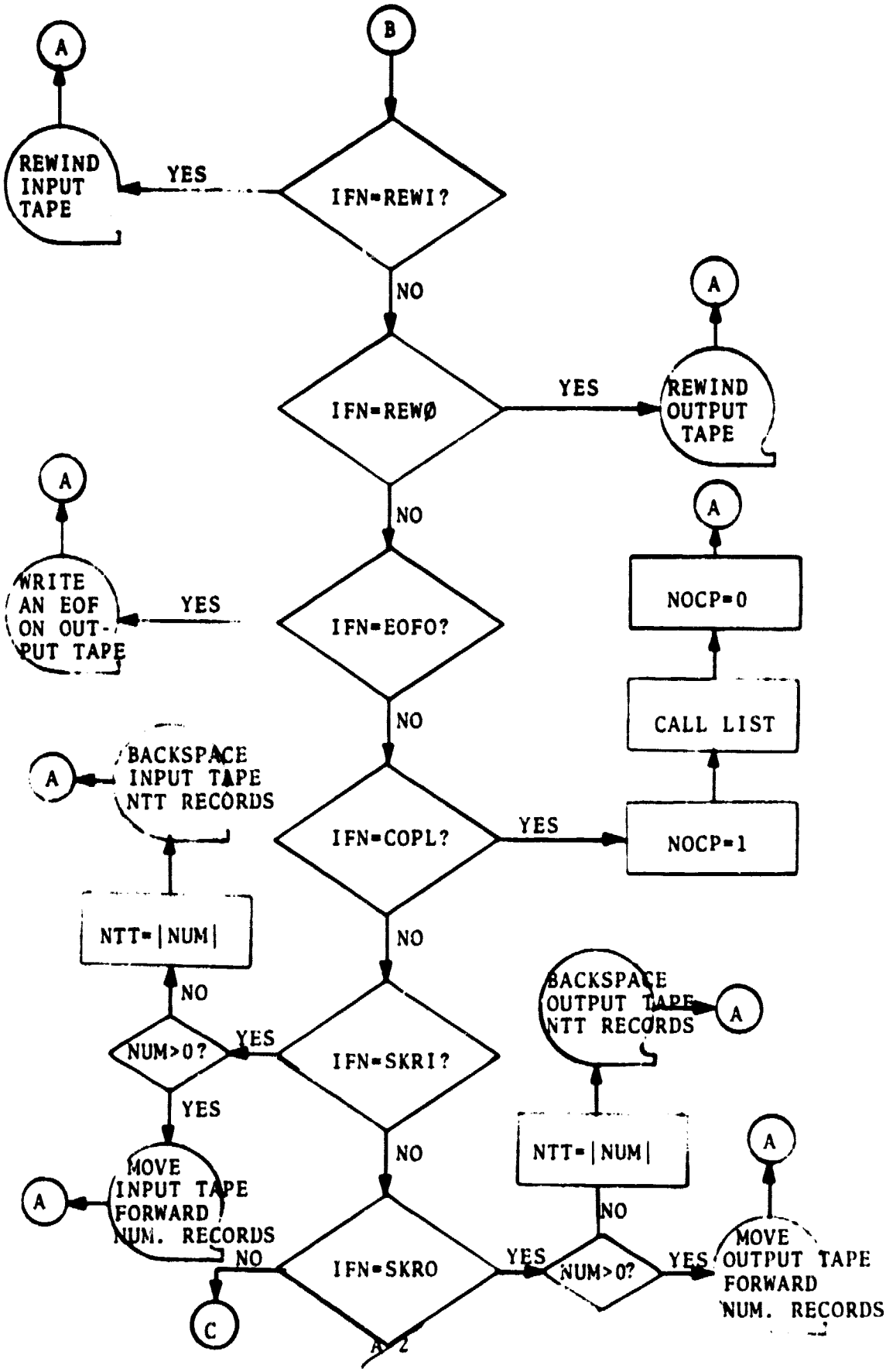
See Appendix B.

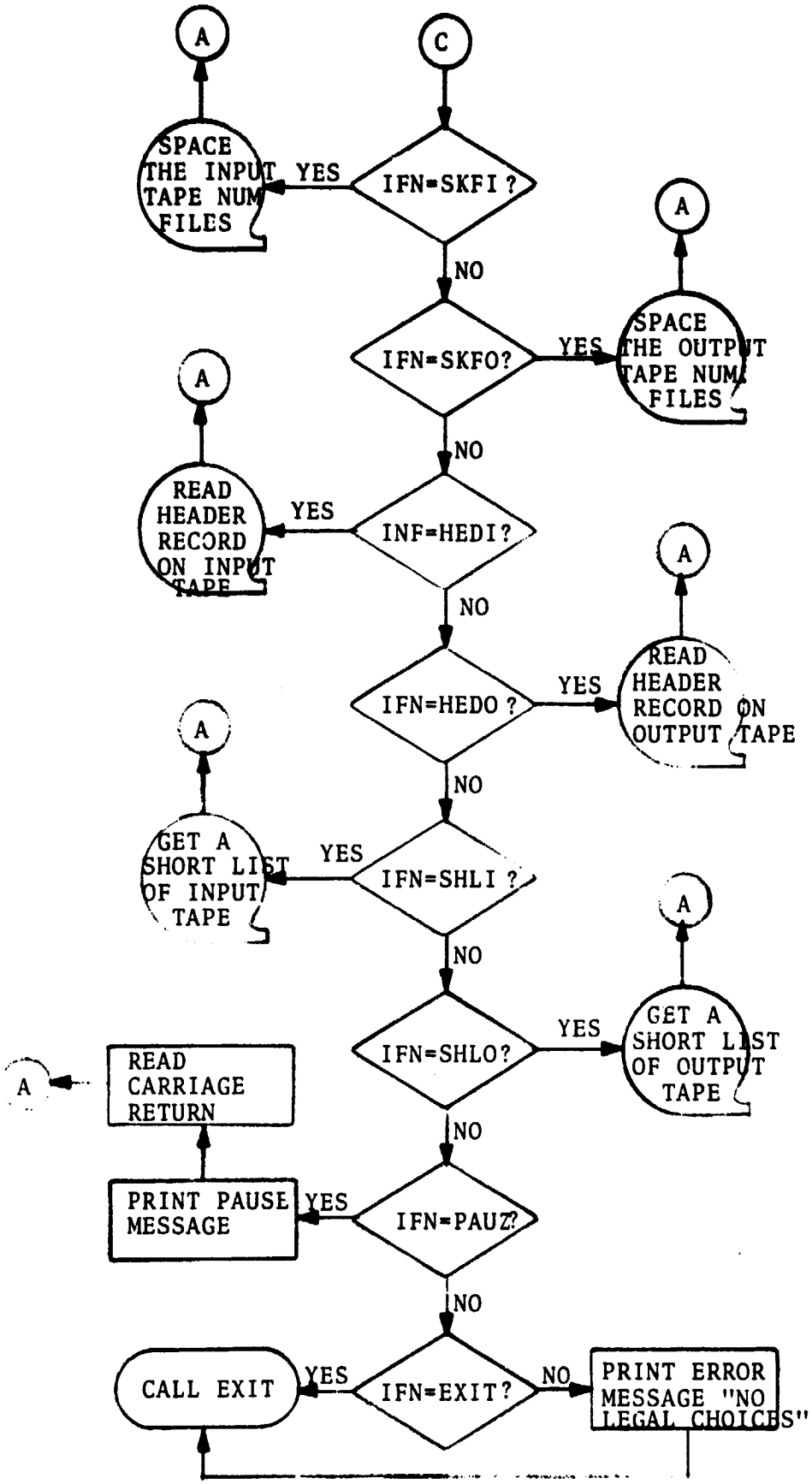
APPENDIX A

FLOWCHARTS

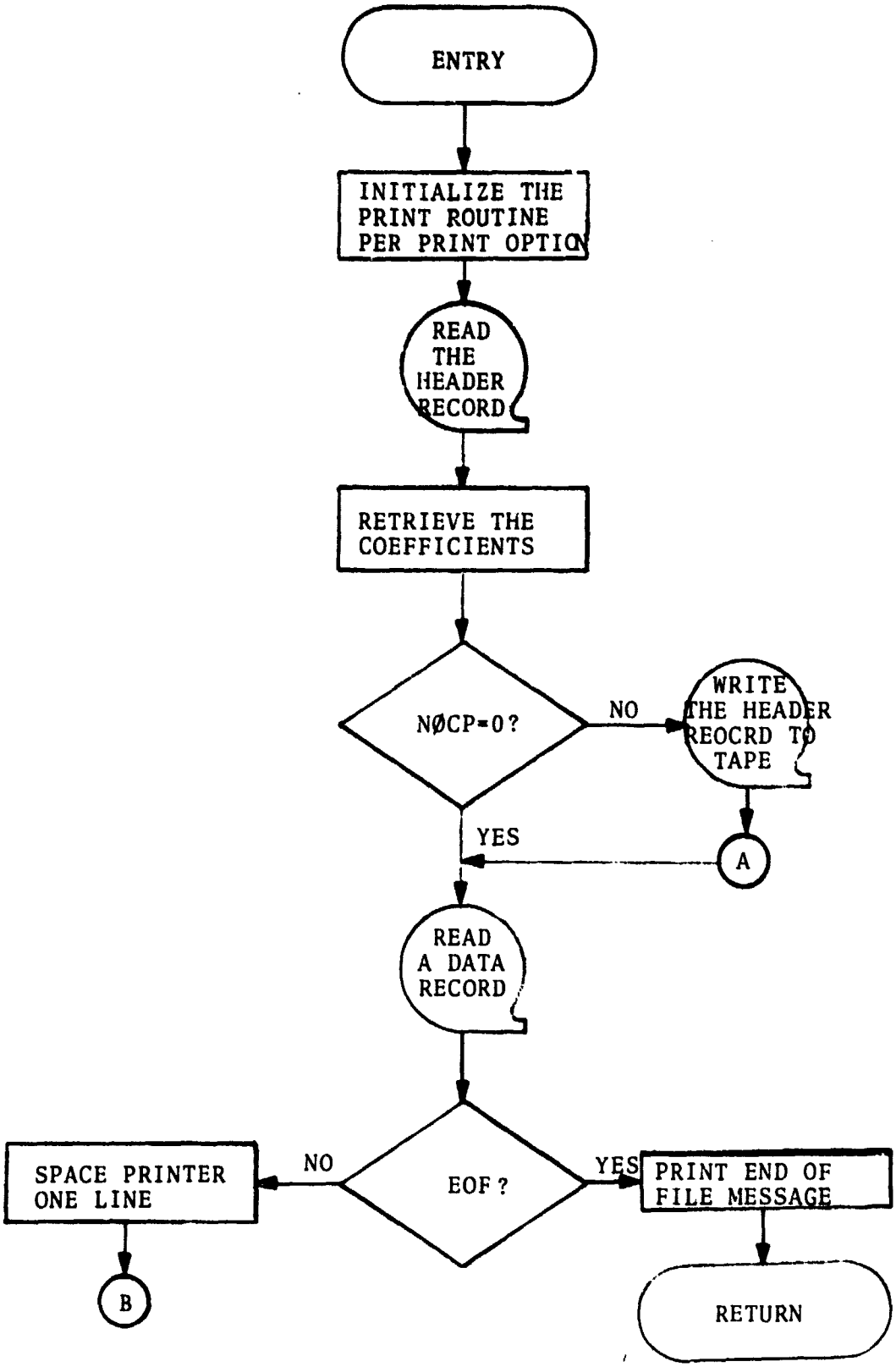
MDEP MAIN PROGRAM

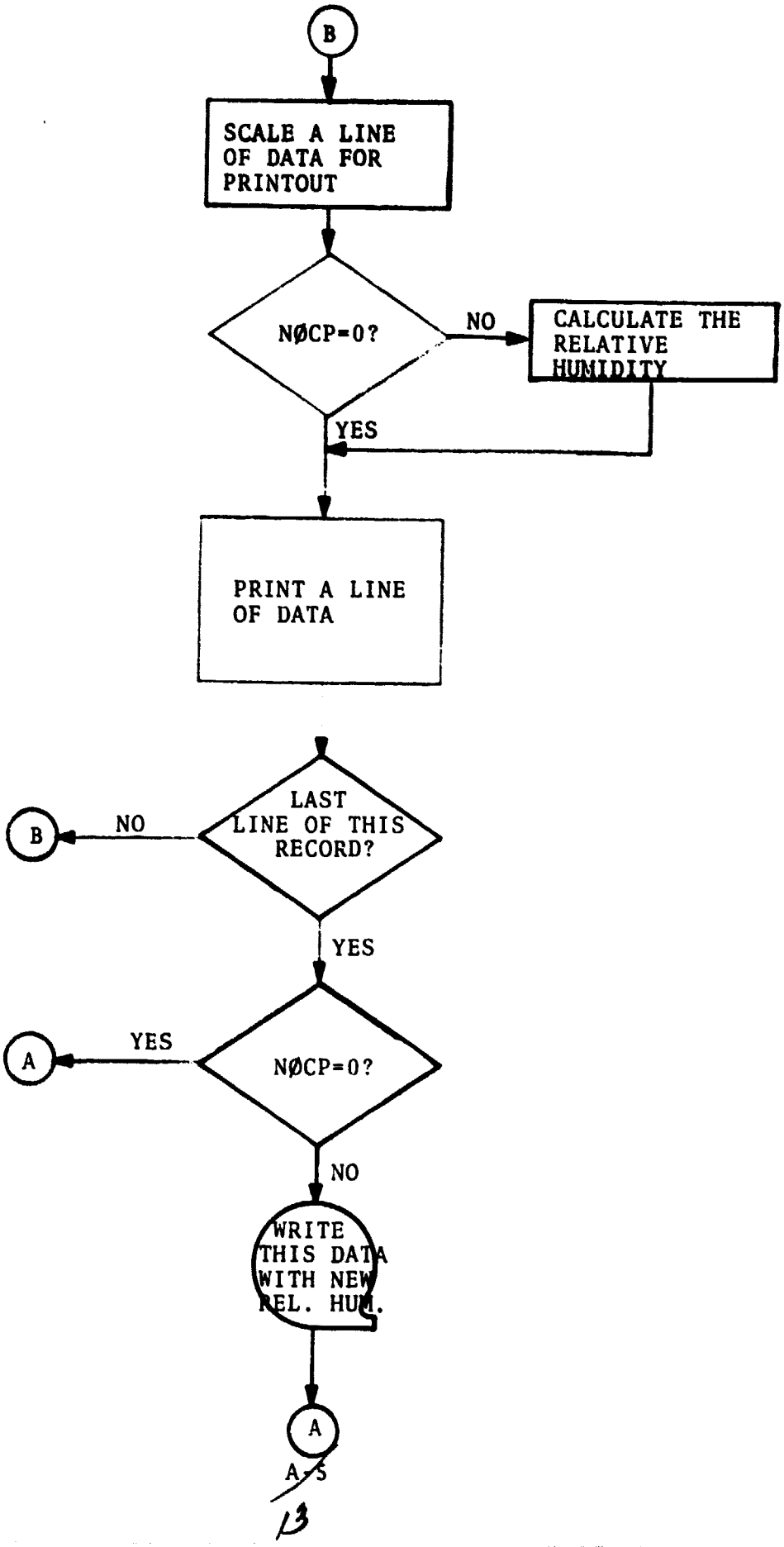



A
B
REWIND INPUT TAPE
YES
IFN=REWI?
NO
A
IFN=REWØ
YES
REWIND OUTPUT TAPE
A
NO
A
WRITE AN EOF ON OUT-PUT TAPE
YES
IFN=EOFO?
A
NOCP=0
NO
CALL LIST
A
BACKSPACE INPUT TAPE NTT RECORDS
IFN=COPL?
YES
NOCP=1
NTT=|NUM|
NO
NO
BACKSPACE OUTPUT TAPE NTT RECORDS
A
NUM>0?
YES
IFN=SKRI?
YES
NO
NTT=|NUM|
A
MOVE INPUT TAPE FORWARD NUM. RECORDS
A
NO
IFN=SKRO
YES
NUM>0?
YES
MOVE OUTPUT TAPE FORWARD NUM. RECORDS
C
A 2

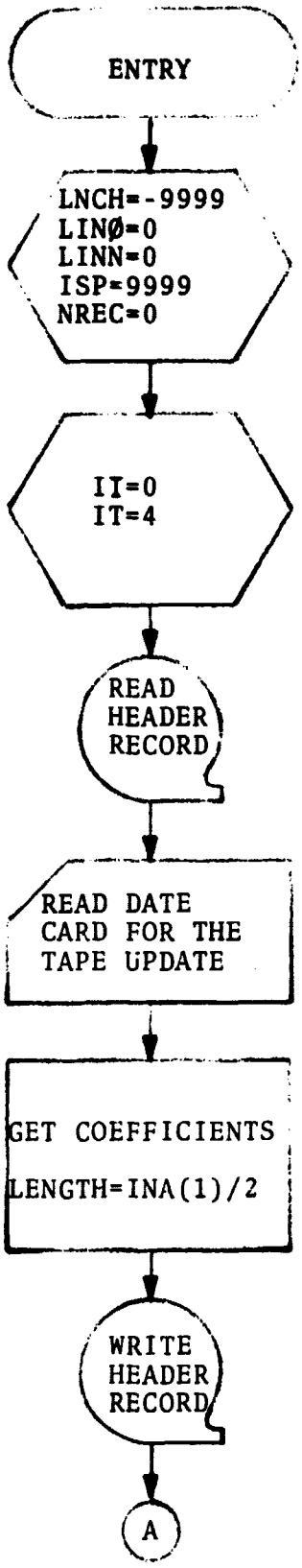

A
C
SPACE THE INPUT TAPE NUM FILES
YES
IFN=SKFI ?
NO
A
SPACE THE OUTPUT TAPE NUM FILES
IFN=SKFO?
YES
NO
A
READ HEADER RECORD ON INPUT TAPE
YES
INF=HEDI?
NO
A
READ HEADER RECORD ON OUTPUT TAPE
IFN=HEDO ?
YES
NO
A
GET A SHORT LIST OF INPUT TAPE
YES
IFN=SHLI ?
NO
A
GET A SHORT LIST OF OUTPUT TAPE
IFN=SHLO?
YES
NO
A
READ CARRIAGE RETURN
PRINT PAUSE MESSAGE
YES
IFN=PAUZ?
NO
CALL EXIT
YES
IFN=EXIT?
NO
PRINT ERROR MESSAGE "NO LEGAL CHOICES"

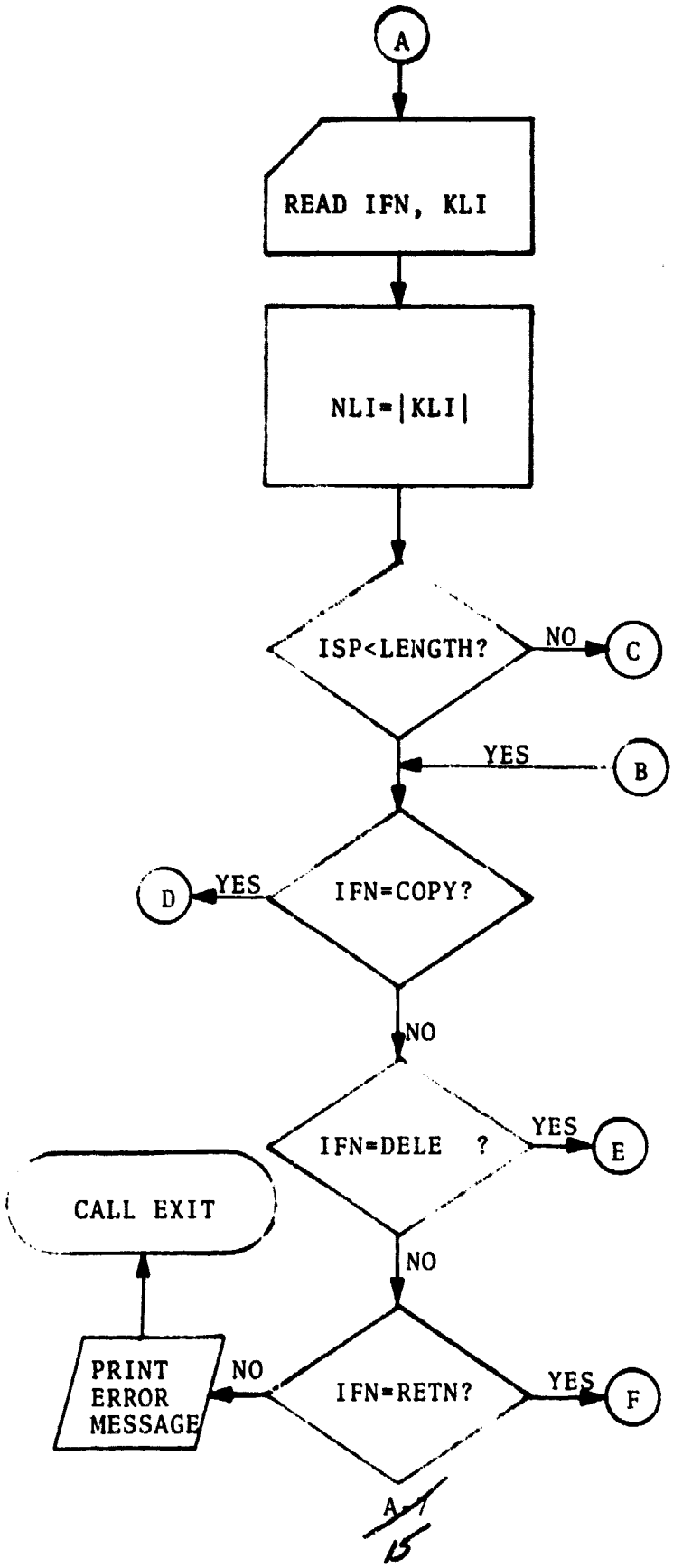
SUBROUTINE LIST

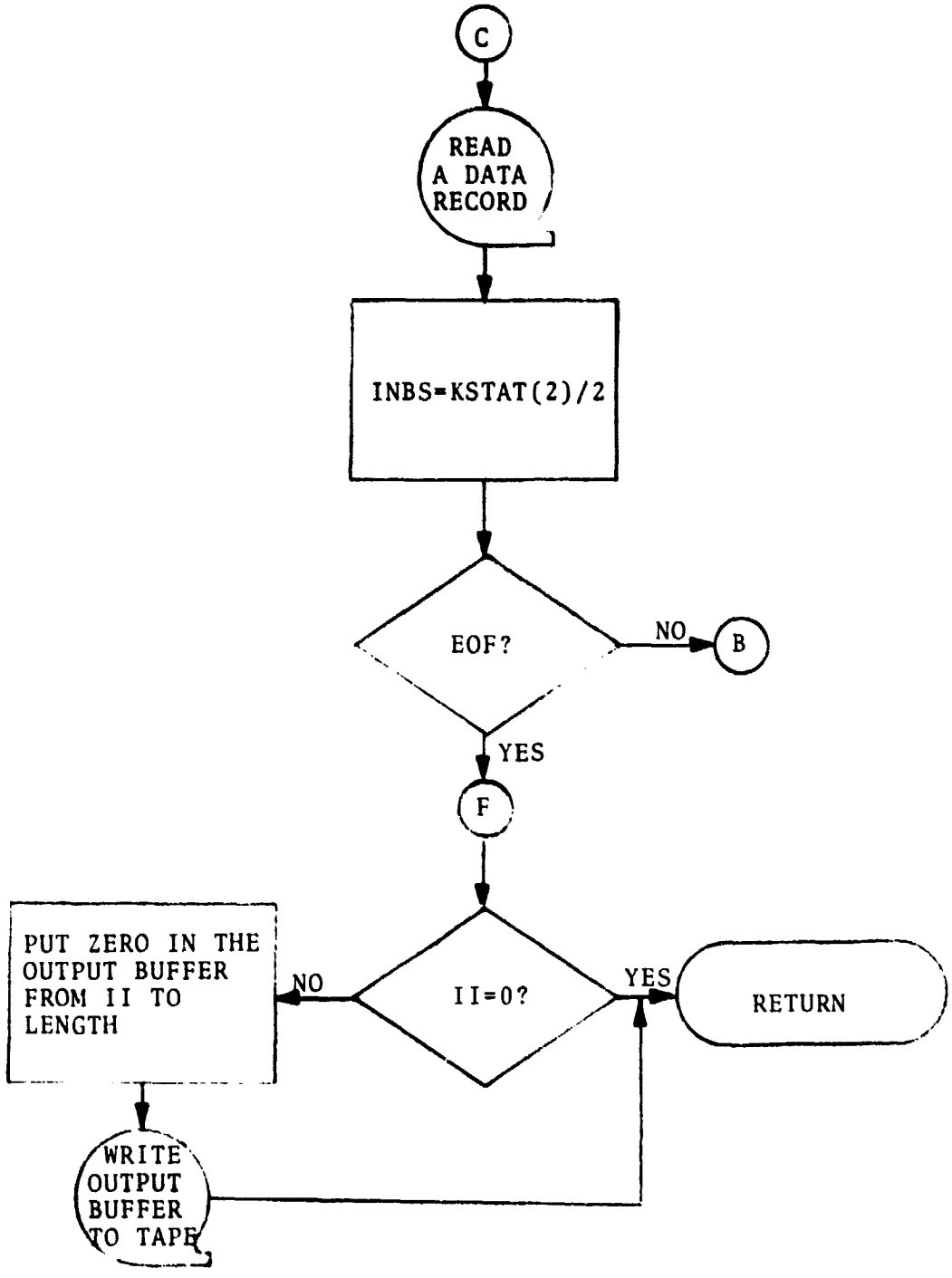


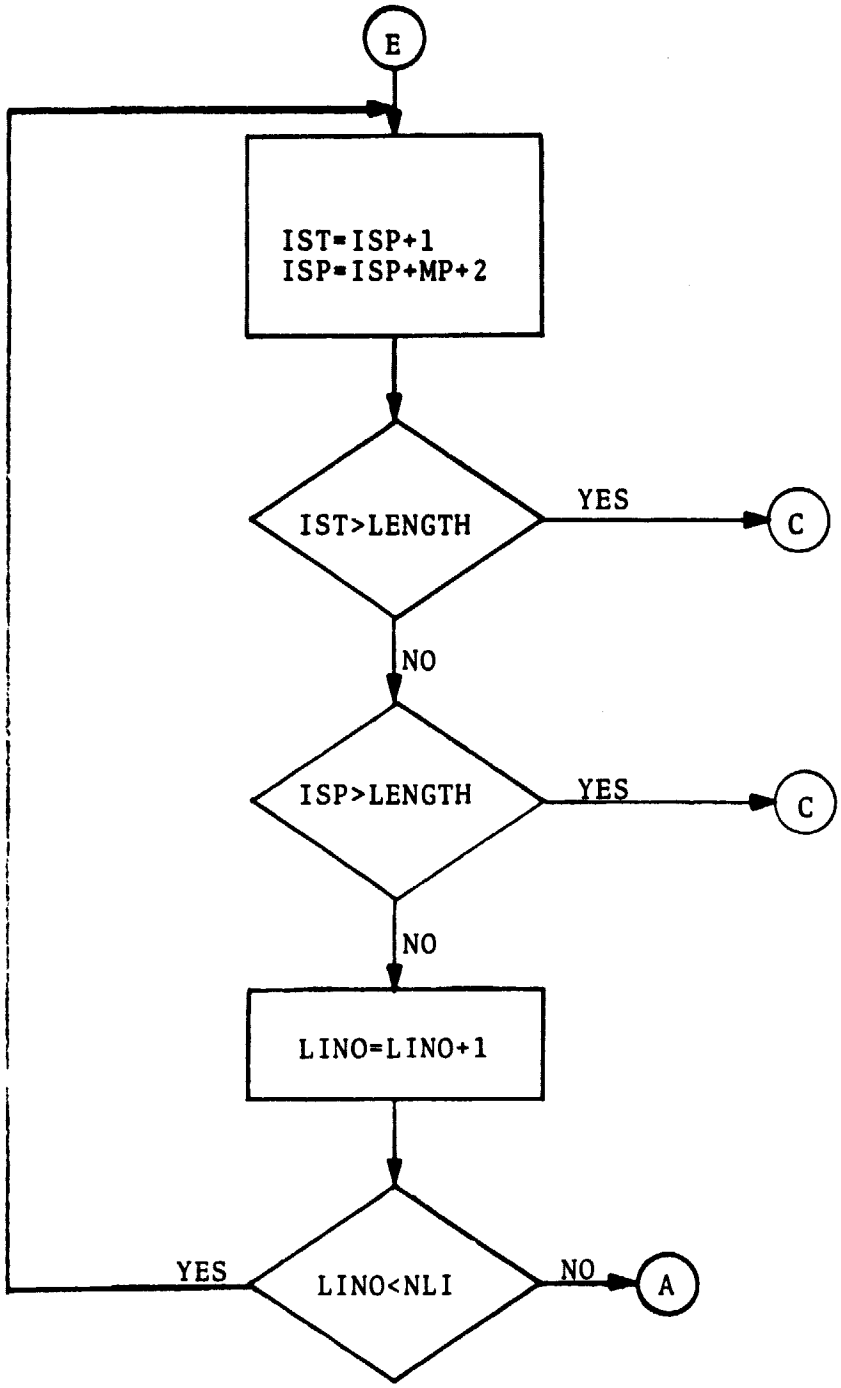

B
SCALE A LINE OF DATA FOR PRINTOUT
NØCP=0?
NO
CALCULATE THE RELATIVE HUMIDITY
YES
PRINT A LINE OF DATA
LAST LINE OF THIS RECORD?
NO
B
YES
NØCP=0?
YES
A
NO
WRITE THIS DATA WITH NEW REL. HUM.
A
A-5

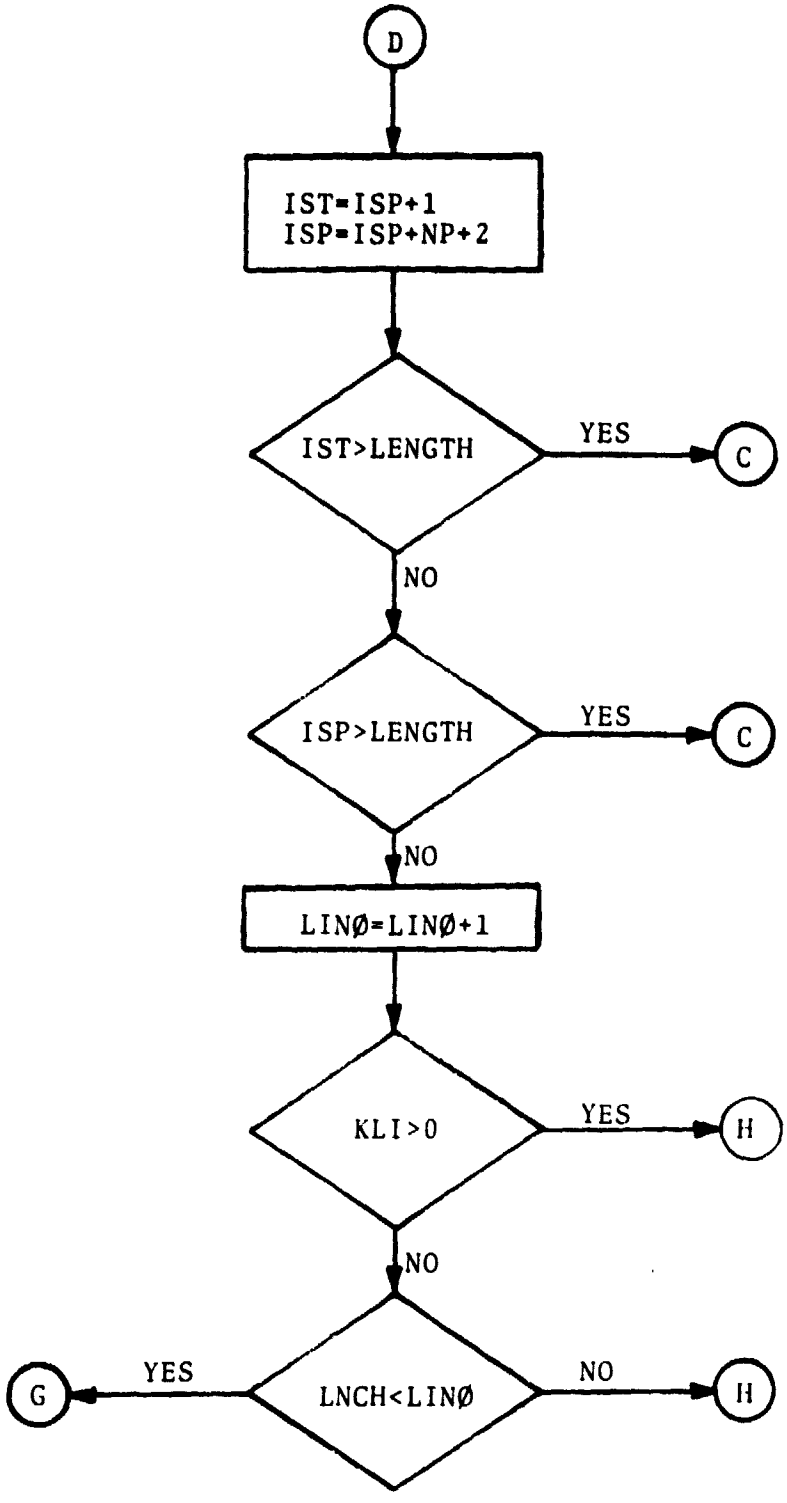
SUBROUTINE EDIT

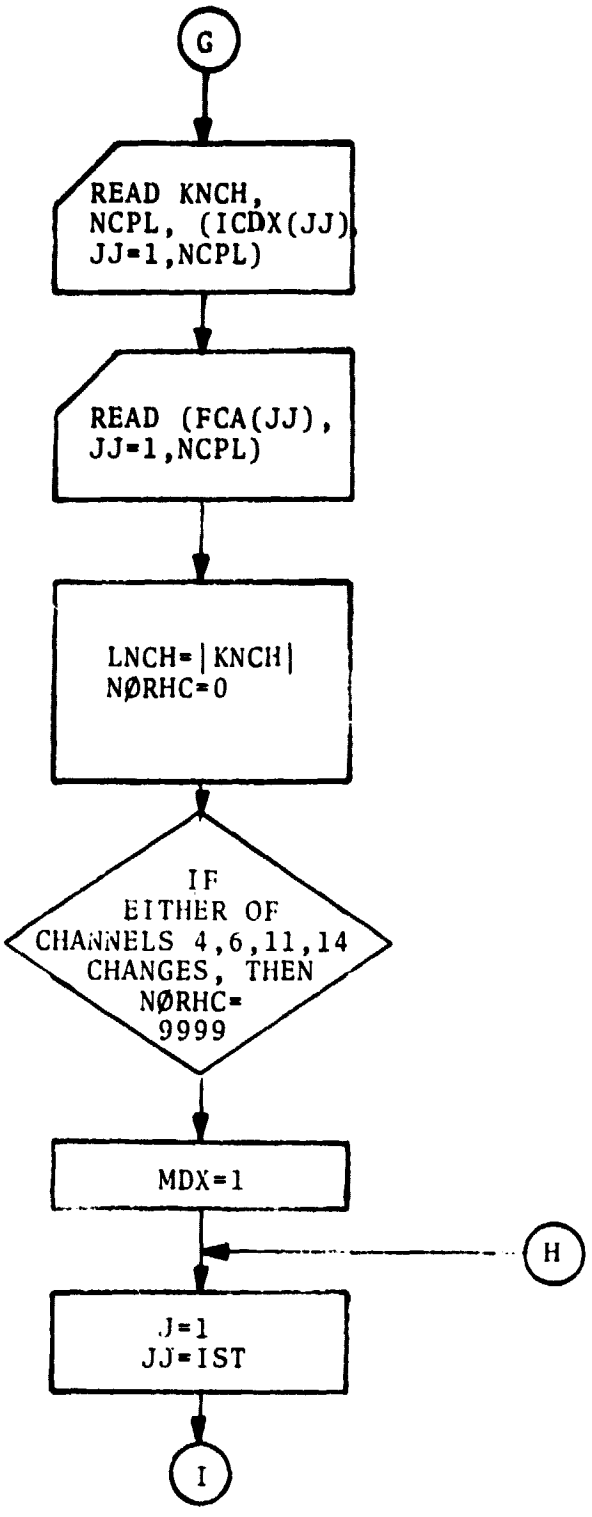


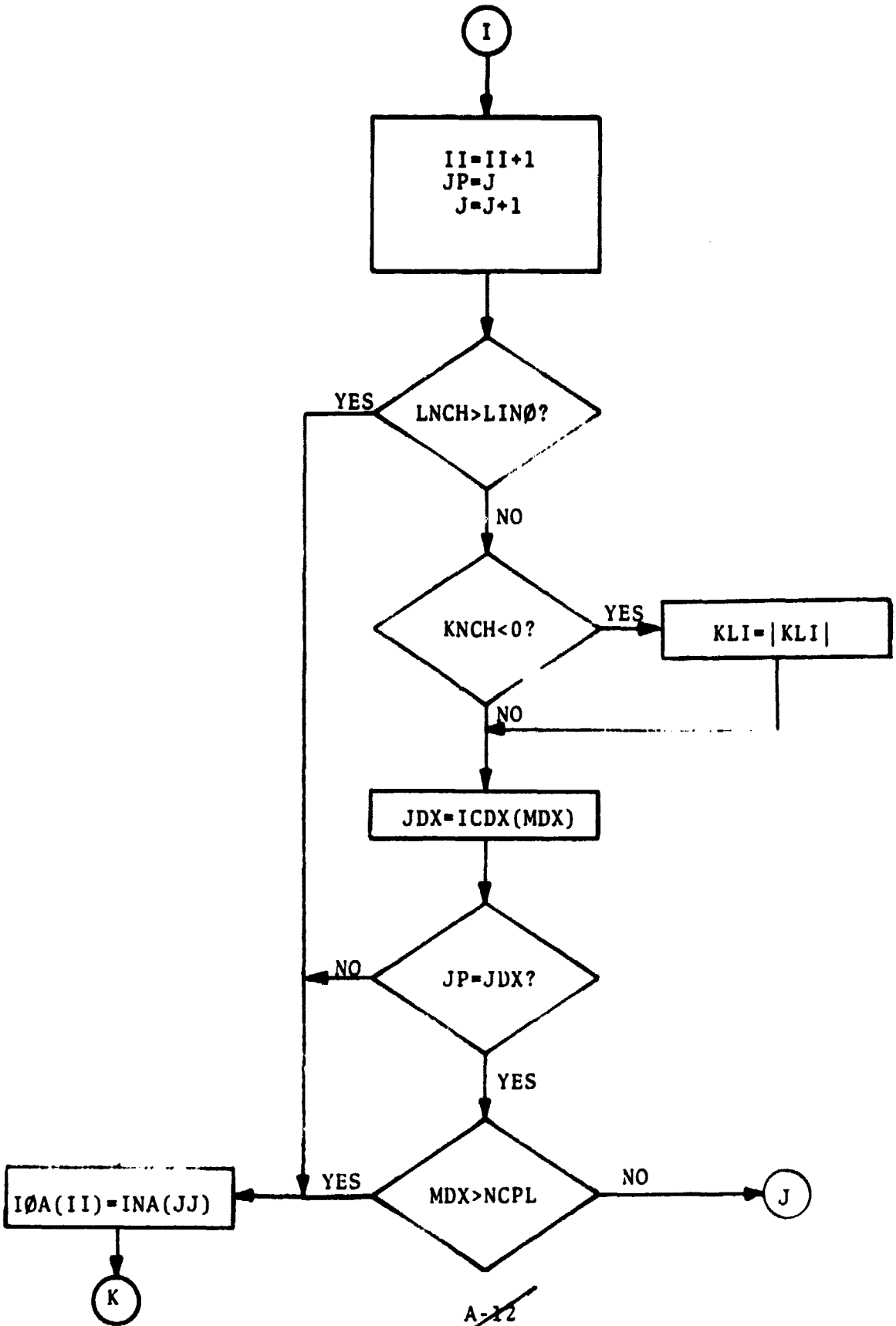

A
READ IFN, KLI
NLI=|KLI|
ISP<LENGTH?
NO
C
YES
B
D
YES
IFN=COPY?
NO
IFN=DELE ?
YES
E
CALL EXIT
NO
PRINT
ERROR
MESSAGE
NO
IFN=RETN?
YES
F

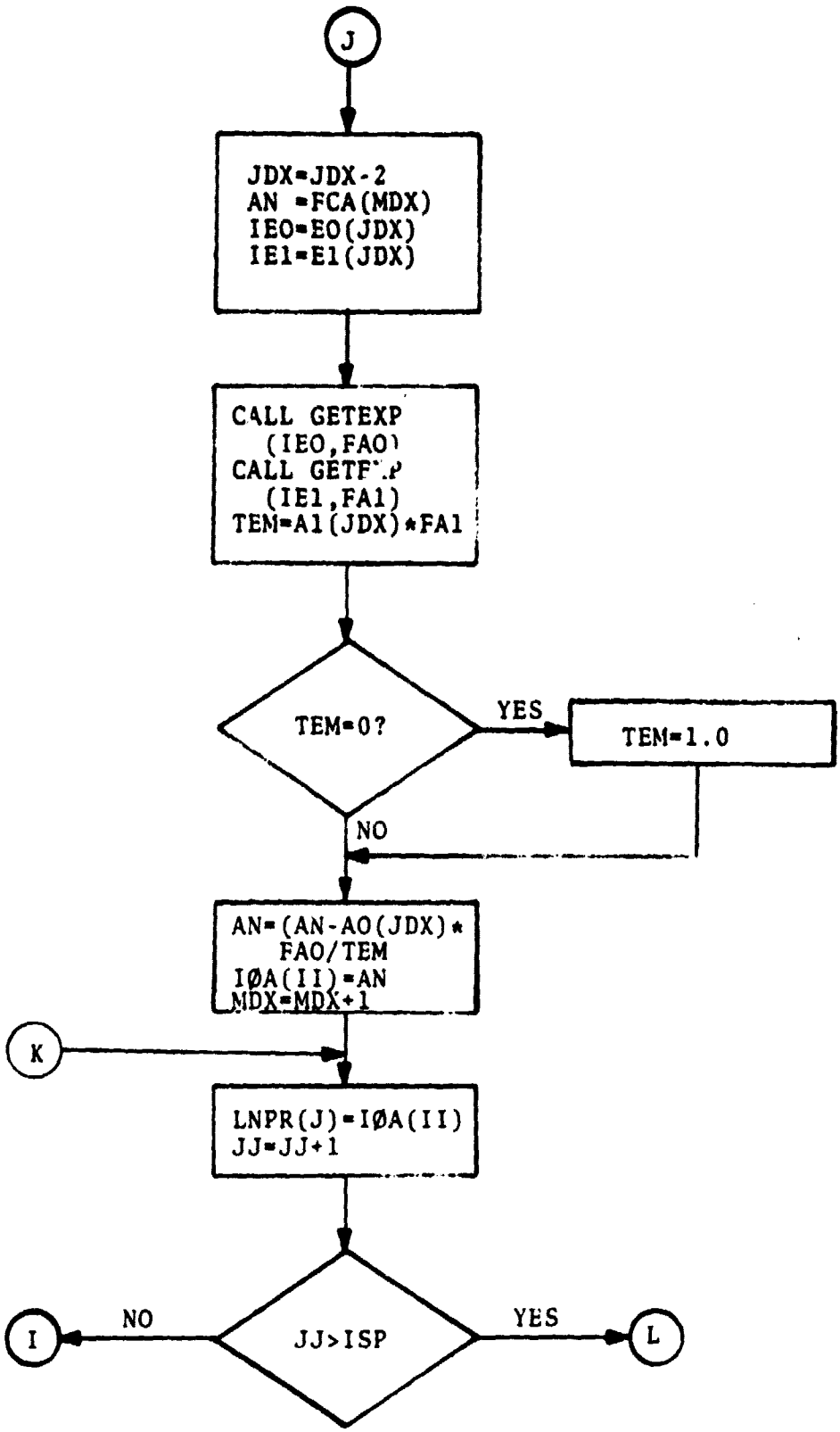

C
READ A DATA RECORD
INBS=KSTAT(2)/2
EOF?
NO
B
YES
F
PUT ZERO IN THE OUTPUT BUFFER FROM II TO LENGTH
NO
II=0?
YES
RETURN
WRITE OUTPUT BUFFER TO TAPE

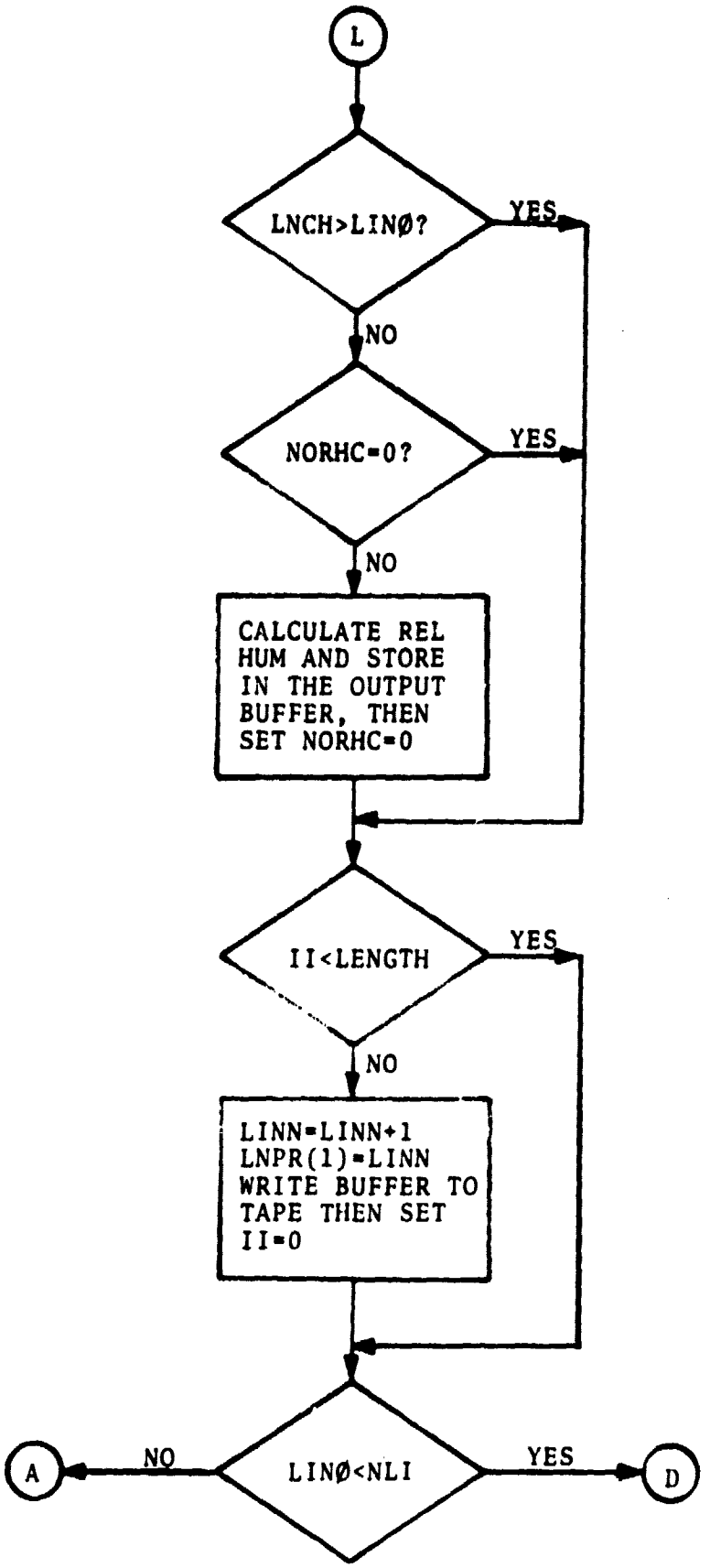

E
IST=ISP+1
ISP=ISP+MP+2
IST>LENGTH
YES
C
NO
ISP>LENGTH
YES
C
NO
LINO=LINO+1
LINO<NLI
YES
NO
A


D
IST=ISP+1
ISP=ISP+NP+2
IST>LENGTH
YES
C
NO
ISP>LENGTH
YES
C
NO
LINØ=LINØ+1
KLI>0
YES
H
NO
LNCH<LINØ
YES
G
NO
H


G
READ KNCH, NCPL, (ICDX(JJ) JJ=1,NCPL)
READ (FCA(JJ), JJ=1,NCPL)
LNCH=|KNCH|
NØRHC=0
IF EITHER OF CHANNELS 4,6,11,14 CHANGES, THEN NØRHC= 9999
MDX=1
H
J=1
JJ=IST
I


I
II=II+1
JP=J
J=J+1
LNCH>LINØ?
YES
NO
KNCH<0?
YES
KLI=|KLI|
NO
JDX=ICDX(MDX)
JP=JDX?
NO
YES
MDX>NCPL
YES
NO
J
IØA(II)=INA(JJ)
K


J
JDX=JDX-2
AN =FCA(MDX)
IEO=EO(JDX)
IE1=E1(JDX)
CALL GETEXP
(IEO,FAO)
CALL GETEXP
(IE1,FA1)
TEM=A1(JDX)*FA1
TEM=0?
YES
TEM=1.0
NO
AN=(AN-AO(JDX)*
FAO/TEM
IØA(II)=AN
MDX=MDX+1
K
LNPR(J)=IØA(II)
JJ=JJ+1
JJ>ISP
NO
I
YES
L


L
LNCH>LINØ?
YES
NO
NORHC=0?
YES
NO
CALCULATE REL HUM AND STORE IN THE OUTPUT BUFFER, THEN SET NORHC=0
II<LENGTH
YES
NO
LINN=LINN+1
LNPR(1)=LINN
WRITE BUFFER TO TAPE THEN SET II=0
A
NO
LINØ<NLI
YES
D

APPENDIX B

LISTING

```
DK1:=DEP,LP1=DK1:[50,51]=DEP;DK0:[11,1]LECTAP,DK0:[1,1]F4POTS/LB
DK0:[100,41]MALIA/LB
/
ASG=CR:5
ASG=LP:4
ASG=TI:6
UNITS=9
//
```

```
 FORTRAN IV-PLUS V02-08                16:03:15     09-DEC-76          PAGE 1
 MDEP.FTN          /TR:BLOCKS/WB

0001            COMMON/UNITS/IN,IO,MTI,MTO,NOCP,INA(1530),INBS,NOPTN
0002            COMMON/STATUS/KSTAT(2)
0003            DIMENSION IFN(2),IAPF(2,17)
0004            DATA IAPF/'LS','TI','LS','TO','ED','IT','EX','IT','RE','WI',
               1'RE','WO','ED','FO','CO','PL','SK','RI','SK','RO','SK','FI',
               2'SK','FO','HE','DI','HE','DO','SH','LI','SH','LO','PA','UZ'/
0005            NOPTN=1
0006            NOCP=0
0007            LO=17
0008            LI=2
0009            IN=5
0010            IO=6
0011            MTI=8
0012            MTO=9
0013            NTXTFG=0
0014            IT=4
0015            CALL TINIT(MTI,NTXTFG,0)
0016            CALL TINIT(MTO,NTXTFG,1)
0017            CALL TATCH(MTI)
0018            CALL TATCH(MTO)
0019    10      CONTINUE
0020            READ(IN,100)IFN,NUM,KOPTN
0021            IF(NUM.EQ.0)NUM=1
0022            IF(KOPTN.LT.0.OR.KOPTN.GT.3)GO TO 21
0023            IF(KOPTN.EQ.0)GO TO 22
0024            NOPTN=KOPTN
0025    22      CONTINUE
0026            DO 2 JO=1,LO
0027            DO 1 JI=1,LI
0028            IF(IFN(JI).NE.IAPF(JI,JO))GO TO 2
0029    1       CONTINUE
0030            WRITE(IT,902)IFN
0031            GO TO (3,9,4,5,6,7,8,11,12,13,14,15,16,17,18,19,23),JO
0032    2       CONTINUE
0033            WRITE(IO,102)
0034            GO TO 5
0035    3       CALL LIST
0036            GO TO 10
0037    11      NOCP=1
0038            CALL LIST
0039            NOCP=0
0040            GO TO 10
0041    9       MTI=MTI
0042            MTI=MTO
0043            CALL LIST
0044            MTI=MTI
0045            GO TO 10
0046    4       CALL EDIT
0047            GO TO 10
0048    5       CALL EXIT
                C       REWIND INPUT TAPE
0049    6       IRU=MTI
0050            GO TO 20
                C       REWIND OUTPUT TAPE
0051    7       IRU=MTO
0052    20      CALL TRWD(IRU)
```

```
FORTRAN IV-PLUS V02-04          16103115    09-DEC-76          PAGE 2
MDEP.FTN          /TR:BLOCKS/WO

0053            CALL TWAIT(IRU)
0054            GO TO 10
0055    A        CALL TEOF(MTO)
0056            GO TO 10
        C               SPACE INPUT TAPE  NUM  RECORDS
0057    12      IF(NUM.GT.0)GO TO 30
005A            NTT=IABS(NUM)
0059            CALL TRKSP(MTI,NTT)
0060            GO TO 10
0061    30      CALL TSKIP(MTI,NUM)
0062            GO TO 10
        C               SPACE OUTPUT TAPE NUM RECORDS
0063    13      IF(NUM.GT.0)GO TO 31
0064            NTT=IABS(NUM)
0065            CALL TRKSP(MTO,NTT)
0066            GO TO 10
0067    31      CALL TSKIP(MTO,NUM)
0068            GO TO 10
        C               SPACE THE INPUT TAPE NUM FILES
0069    14      CALL TFILE(MTI,NUM)
0070            GO TO 10
        C               SPACE THE OUTPUT TAPE NUM FILES
0071    15      CALL TFILE(MTO,NUM)
0072            GO TO 10
0073    16      CALL REDMED
0074            GO TO 10
0075    17      MTU=MTI
0076            MTT=MTO
0077            CALL REDMED
0078            MTT=MTU
0079            GO TO 10
00A0    18      CALL SHLIST
00A1            GO TO 10
00A2    19        MTU=MTI
00A3            MTT=MTO
00A4            CALL SHLIST
00A5            MTT=MTU
00A6            GO TO 10
00A7    21      WRITE(TO,103)KHPTN
00A8            GO TO 5
00A9    23      WRITE(TT,104)
0090            READ(TT,100)NUM
0091            GO TO 10
0092    100     FORMAT(2A2,2I2)
0093    102     FORMAT(10A8 LEGAL CHOICES!)
0094    103     FORMAT(10I,I2,1 IS NOT A LEGAL TAPE OPTION  YOU MUST CONSIDER THIS
               1JOB FINISHED!)
0095    104     FORMAT(1 THIS IS A PAUSE.       HIT  CR  TO PROCEED!)
0096    902     FORMAT(1X,2A2)
0097            END
```

```
FORTRAN IV-PLUS V02-04          16:03:28     09-DEC-76          PAGE 4
MDEP.FTN        /TR:BLOCKS/=0

0001            SUBROUTINE LIST
0002            COMMON/UNITS/IN,IO,MTI,MTO,NOCP,INA(1530),INBS,NOPTN
0003            COMMON/STATUS/WSTAT(2)
0004            DIMENSION A0(30),E1(30),E0(30),KD(6)
0005            DIMENSION IOA(1530)
0006            DIMENSION LNPR(30),FNPR(30), A1(30)
0007            GO TO (50,60,70),NOPTN
0008    50      CALL INIT1
0009            GO TO 1
0010    60      CALL INIT2
0011            GO TO 1
0012    70      CALL INIT3
0013    1       CALL REDMED
0014            DO 10 I=1,6
0015            KD(I)=INA(I+1)
0016            CALL SWAB(KD(I))
0017    10      CONTINUE
0018            ENTRY SHLIST
0019            NREC=0
0020            NRMX=9999
0021            NP=INA(8)
0022            CALL GETCO(INA,NP,A0,E0,A1,E1)
0023            LENTH=INA(1)/2
        C           MTI=UNIT,   INA IS THE INPUT BUFFER, INBS IS THE SIZE OF BUFFER IN WORDS
0024            IF(NOCP.EQ.0)GO TO 2
0025            DO 22 I=1,INBS
0026            CALL SWAB(INA(I))
0027    22      CONTINUE
0028            CALL TWRIT(MTO,INA,INBS)
0029            CALL TWAIT(MTO)
        C           READ DATA RECORD
0030    2       CALL  TREAD(MTI,INA,INBS)
0031            CALL TWAIT(MTI)
0032            WRITE(IO,907)
0033            INBS=WSTAT(2)/2
0034            IF(INBS.LE.1)GO TO 5
0035    21      CONTINUE
0036            NREC=NREC+1
0037            IF(NREC.GT.NRMX)GO TO 5
0038            DO 3 I=1,INBS
0039            CALL SWAB(INA(I))
0040    3       CONTINUE
0041            CALL  TSTAT(MTI,ISTAT,IRES)
0042            IF(IAND(ISTAT,"200),NE.0)GO TO 5
0043            J=0
0044            LAG=NP+2
0045    31      CONTINUE
0046            J=J+2
0047            DO 4 I=1,NP
0048            J=J+1
0049            AN=INA(J)
0050            IE0=E0(I)
0051            IE1=E1(I)
0052            CALL GETEXP(IE0,FA0)
0053            CALL GETEXP(IE1,FA1)
0054            FNPR(I)=A0(I)*FA0+AN*A1(I)*FA1
```

```
FORTRAN IV-PLUS V02-08          16:03:28    09-DEC-76          PAGE 5
MDEP.FTN          /TR:BLOCKS/WB

0055     4      CONTINUE
0056            GO TO (9,9,8),NOPTN
0057     9      IF(NOCP.EQ.0)GO TO (6,7),NOPTN
0058             KSTE=FNPR(4)
0059             TW=FNPR(11)
0060             TO=FNPR(14)
0061             BP=FNPR(6)
0062            CALL RLHM(KSTE,TW,TO,BP,RH)
0063            IE0=E0(NP)
0064            IE1=E1(NP)
0065            CALL GETEXP(IE0,FA0)
0066            CALL GETEXP(IE1,FA1)
0067            TEM=A1(NP)*FA1
0068            IF(TEM.EQ.0)TEM=1.0
0069            AN=(RH-A0(NP)*FA0)/TEM
0070            INA(LAG)=AN+0.5
0071            LAG=LAG+NP+2
0072            GO TO (6,7),NOPTN
0073     6      CALL POP1(FNPR,KD)
0074            GO TO 49
0075     7      CALL POP2(FNPR,KD)
0076            GO TO 49
0077     8      CALL POP3(FNPR,KD)
0078     49     CONTINUE
0079            IF(J.LT.LENTH)GO TO 31
0080            IF(NOCP.EQ.0)GO TO 2
0081            DO 48 I=1,LENTH
0082            CALL SWAB(INA(I))
0083     48     CONTINUE
0084            CALL TWRIT(MTO,INA,INBS)
0085            CALL TWAIT(MTO)
0086            GO TO 2
0087     5      WRITE(IO,903)
               C       END OF FILE
0088            RETURN
0089     903    FORMAT('0END OF FILE')
0090     907    FORMAT( )
0091            END
```

```
0001            SUBROUTINE EDIT
0002            COMMON/UNITS/IN,IO,MTI,MTO,NOCP,INA(1530),INBS,NOPTN
0003            COMMON/STATUS/KSTAT(2)
0004            DIMENSION IOA(1530),LNPR(25),IFN(2),IEDF(2,3) ,IHED(2)
0005            DIMENSION ICDX(30),ICA(30),A1(30),KCHA(4),FCA(30)
0006            DIMENSION A0(30),E0(30),E1(30)
0007            DATA IEDF/'CO','PY','DE','LE','NE','TN'/
0008            DATA NREC,ISEG,NRMX,NTXTFG,KOF/0,0,9999,0,3/
0009            DATA KCHA/4,6,11,10/
0010            LNCH=-9999
0011            LINO=0
0012            LINN=0
0013            ISP=9999
0014            NREC=0
0015            II=0
0016            IT=4
0017            CALL REDHED
0018            NP=INA(8)
0019            READ(IN,907)(INA(I),I=5,7)
0020            DO 1 I=5,7
0021            CALL SWAB(INA(I))
0022    1       CONTINUE
0023    10      DO 11 I=1,INBS
0024            IOA(I)=INA(I)
0025    11      CONTINUE
0026            CALL GETCO(INA,NP,A0,E0,A1,E1)
0027            LENTH=INA(1)/2
                C
                C       WRITE HEADER RECORD HERE
                C
0028            DO 36 K=1,INBS
0029            CALL SWAB(IOA(K))
0030    36      CONTINUE
0031            CALL TWRIT(MTO,IOA,INBS)
0032            CALL TWAIT(MTO)
0033    12      READ(IN,900)IFN,KLI
0034            NLI=IABS(KLI)
0035            IF(ISP.LT.LENTH)GO TO 15
                C       READ DATA RECORD
                C
0036    13      CALL  TREAD(MTI,INA,INBS)
0037            CALL TWAIT(MTI)
0038            INBS=KSTAT(2)/2
0039            IF(INBS.LE.1)GO TO 51
0040            CALL  TSTAT(MTI,ISTAT,IRES)
0041            IF(IAND(ISTAT,"200).NE.0)GO TO 51
0042            NREC=NREC+1
                C       IF(NREC.GT.NRMX)GO TO 51
0043            ISP=0
0044            DO 14 I=1,INBS
0045            CALL SWAB(INA(I))
0046    14      CONTINUE
                C       CHECK FUNCTION CODE
                C       KOF=NUMBER OF FUNCTIONS ALLOWED
0047    15      DO 17 JO=1,KOF
0048            DO 16 JI=1,2
```

```
0049            IF(IFN(JI).NE.TEOF(JI,JO))GO TO 17
0050     16     CONTINUE
0051            GO TO (30,40,51),JO
0052     17     CONTINUE
0053            WRITE(TO,909)IFN
0054            CALL EXIT
                C       COPY ROUTINE
0055     30     CONTINUE
0056            TST=TSP+1
0057            TSP=TSP+NP+2
0058            IF(IST.GT.LENTH)GO TO 13
0059            IF(ISP.GT.LENTH)GO TO 13
                C           ICDX=INDEX ARRAY
                C           LNCH=LINE NUMBER TO CHANGE
                C           NCPL=NUMBER OF CHANGES PER LINE
                C           ICA =INTERGER CHANGE ARRAY
0060            LINO=LINO+1
0061            IF(KLI.GT.0)GO TO 32
0062            IF(LNCH.GE.LINO)GO TO 32
0063            READ(IN,901)KNCH,NCPL,(ICDX(JJ),JJ=1,NCPL)
0064            READ(IN,906)(FCA(JJ),JJ=1,NCPL)
0065            LNCH=IABS(KNCH)
0066            NORMC=0
0067            DO 37  JJ=1,NCPL
0068            IF(NORMC.NE.0)GO TO 41
0069            DO 39 J=1,4
0070            IF(ICDX(JJ).NE.KCHA(J))GO TO 39
0071            NORMC=9999
0072            GO TO 41
0073     39     CONTINUE
0074     41     ICDX(JJ)=ICDX(JJ)+2
0075     37     CONTINUE
0076            MDX=1
0077     32     J=1
0078            DO 31  JJ=IST,TSP
0079            II=II+1
0080            JP=J
0081            J=J+1
0082            IF(LNCH.GT.LINO)GO TO 33
0083            IF(KNCH.LT.0)KLI=IABS(KLI)
0084            JDX=ICDX(MDX)
0085            IF(JP.NE.JDX)GO TO 33
0086            IF(MDX.GT.NCPL)GO TO 33
0087            JDX=JDX-2
0088            AN=FCA(MDX)
0089            TE0=E0(JDX)
0090            TE1=E1(JDX)
0091            CALL GETEXP(TE0,FA0)
0092            CALL GETEXP(TE1,FA1)
0093            TEM=A1(JDX)*FA1
0094            IF(TEM.EQ.0)TEM=1.0
0095            AN=(AN-A0(JDX)*FA0)/TEM
0096            IOA(II)=AN
0097            MDX=MDX+1
0098            GO TO 34
0099     33     IOA(II)=INA(JJ)
```

```
0100     34     LNPR(J)=IOA(II)
0101     31     CONTINUE
0102            IF(LNCH.GT.LIMH)GO TO 47
0103            IF(NORMC.EQ.0)GO TO 47
0104            IE0=E0(8)
0105            IE1=E1(8)
0106            CALL GETEXP(IE0,FA0)
0107            CALL GETEXP(IE1,FA1)
0108            AN=LNPR(7)
0109            KSTE=A0(4)*FA0+AN*A1(4)*FA1
0110            IE0=E0(6)
0111            IE1=E1(6)
0112            CALL GETEXP(IE0,FA0)
0113            CALL GETEXP(IE1,FA1)
0114            AN=LNPR(9)
0115            BP=A0(6)*FA0+AN*A1(6)*FA1
0116            IE0=E0(11)
0117            IE1=E1(11)
0118            CALL GETEXP(IE0,FA0)
0119            CALL GETEXP(IE1,FA1)
0120            AN=LNPR(14)
0121            TW=A0(11)*FA0+AN*A1(11)*FA1
0122            IE0=E0(14)
0123            IE1=E1(14)
0124            CALL GETEXP(IE0,FA0)
0125            CALL GETEXP(IE1,FA1)
0126            AN=LNPR(17)
0127            TO=A0(14)*FA0+AN*A1(14)*FA1
0128            CALL RLHM(KSTE,TW,TO,BP,RH)
0129            IE0=E0(NP)
0130            IE1=E1(NP)
0131            CALL GETEXP(IE0,FA0)
0132            CALL GETEXP(IE1,FA1)
0133            TEM=A1(NP)*FA1
0134            IF(TEM.EQ.0)TEM=1.0
0135            AN=(RH-A0(NP)*FA0)/TEM
0136            IOA(II)=AN
0137            NORMC=0
0138     47     IF(II.GE.LENTH)GO TO 38
0139            IF(LINO.GE.NLI)GO TO 12
0140            GO TO 30
0141     38     LINN=LINN+1
0142            LNPR(1)=LINN
               C     WRITE(10,904)LNPR
               C     WRITE IOA TO OUTPUT TAPE
0143            DO 35 K=1,TNRS
0144            CALL SWAP(IOA(K))
0145     35     CONTINUE
0146            CALL TWRIT(MTO,IOA,LENTH)
0147            CALL TWAIT(MTO)
0148            II=0
0149            IF(LINO.GE.NLI)GO TO 12
0150            GO TO 30
               C
               C        DELETE ROUTINE
               C        DELETE ROUTINE
```

```
0151     40     CONTINUE
0152            IST=ISP+1
0153            ISP=ISP+NP+2
0154            IF(IST.GT.LENTH)GO TO 13
0155            IF(ISP.GT.LENTH)GO TO 13
0156            LINO=LINO+1
0157            IF(LINO.GE.NLI)GO TO 12
0158            GO TO 40
0159     51     IF(II.EQ.0)GO TO 54
0160            DO 53 I=II,LENTH
0161            IOA(I)=0
0162     53     CONTINUE
0163            DO 55 I=1,LENTH
0164            CALL SWAB(IOA(I))
0165     55     CONTINUE
0166            CALL TWRIT(HTO,IOA,LENTH)
0167     54     RETURN
0168     900    FORMAT(2A2,I6)
0169     901    FORMAT(16I5)
0170     902    FORMAT(16(1X,2A))
0171     903    FORMAT(I1)
0172     904    FORMAT(1X,12I10)
0173     905    FORMAT(1X,2A2,T6)
0174     906    FORMAT(16F5.0)
0175     907    FORMAT(3A2)
0176     909    FORMAT(/10ERROR IN EDIT DECK---ILLEGAL EDIT OPTION!,3X,2A2)
0177            END
```

```
0001            SUBROUTINE GETCO(INA,NP,AO,EO,A1,E1)
0002            DIMENSION INA(1),AO(1),EO(1),A1(1),E1(1)
0003            IB=6
0004            DO 1 I=1,NP
0005            IB=IB+12
0006            AO(I)=INA(IB)
0007            IB=IB+1
0008            EO(I)=INA(IB)
0009            IB=IB+1
0010            A1(I)=INA(IB)
0011            IB=IB+1
0012            E1(I)=INA(IB)
0013        1   CONTINUE
0014            IO=6
0015            RETURN
0016            END
```

```
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MDEP.FTN          /TP:BLOCKS/WR

0001            SUBROUTINE REDMEM
0002            COMMON/UNITS/IN,IO,MTI,MTO,NOCP,INA(1530),INBS,NOPTN
0003            COMMON/STATUS/MSTAT(2)
0004            INBS=1530
0005            CALL TREAD(MTI,INA,INBS)
0006            CALL TWAIT(MTI)
0007            INBS=MSTAT(2)/2
0008            DO 1 I=1,INBS
0009            CALL SWAB(INA(I))
0010         1  CONTINUE
0011            RETURN
0012            END
```

```
FORTRAN IV-PLUS V02-04          16:04:14    [illegible]-DEC-76          PAGE 14
MDEP.FTN        /TH:BLOCKS/WR

          C          THIS SUBROUTINE CALCULATES THE RELATIVE HUMIDITY
0001            SUBROUTINE RLHM(KSTE,TW,TD,BP,RH)
0002            DIMENSION KSITE(4),DPA(4)
0003            DATA KSITE,DPA/76,118,195,2,75.4,65.9,41.3,75.4/
0004            DP=0.0
0005            DO 40 I=1,4
0006            IF(KSTE.NE.KSITE(I))GO TO 40
0007            DP=DPA(I)
0008            GO TO 41
0009      40    CONTINUE
0010      41    CONTINUE
0011            TWP=TW+235.0
0012            TDP=TD+235.0
0013            QW=8.10765-1750.286/TWP
0014            QD=8.10765-1750.286/TDP
0015            TDMTW=TD-TW
0016            PW=10.0**QW
0017            PEG=10.0**QD
0018            PO=BP-DP
0019            TEMP=6.6*PO*TDMTW*(1.0+1.15*TDMTW/1000.0)/10000.0
0020            PA=PW-TEMP
0021            RH=PA/PEG*100.0
0022            RETURN
0023            END
```

```
0001            SUBROUTINE POP2(F,KD)
0002            DIMENSION F(1),K(6),A(17),KD(6)
0003            DATA LINE,LPP,ISEG,IO/9999,55,0,6/
0004            IF(LINE.LT.LPP)GO TO 1
0005            LINE=0
0006            WRITE(IO,102)KD
0007            WRITE(IO,100)
0008      1     ISEG=ISEG+1
0009            LINE=LINE+1
0010            J=0
0011            K(1)=F(1)+0.5
0012            L=F(2)+0.5
0013            CALL SEP(L,K(2))
0014            L=F(3)+0.5
0015            CALL SEP(L,K(4))
0016            K(6)=F(4)+0.5
0017            DO 3 I=5,8
0018            J=J+1
0019      3     A(J)=F(I)
0020            DO 4 I=10,22
0021            J=J+1
0022      4     A(J)=F(I)
0023            WRITE(IO,101)ISEG,K,A
0024      5     RETURN
0025            ENTRY INIT2
0026            ISEG=0
0027            LINE=9999
0028            GO TO 5
0029    100     FORMAT(//' LINE',1X,'DAY',3X,'CUT',1X,'SITE',3X,'PYRA',5X,'BP',2X,
               1'W/SPD',2X,'W/DIR',6X,'T 19',1X,'T/WET',2X,'T 20',2X,'T 21',1X,
               2'T/DRY',2X,'T 22',2X,'T 23',2X,'T 24',2X,'T 25',2X,'T 26',2X,
               3'T 27',2X,'T 28',1X,'REL H')
0030    101     FORMAT(1X,I5,2X,I2,2X,4I1,2X,I3,F7.2,3F7.1,4X,13F6.1)
0031    102     FORMAT('1',5X,'GENERATION DATE ',3A2,9X,'ACQUISITION DATE',1X,3A2)
0032            END
```

```
FORTRAN IV-PLUS V02-08          16:04:37    09-DEC-76          PAGE 24
MDEP.FTN        /TR:BLOCKS/WD

0001            SUBROUTINE POPS(P,KD)
0002            DIMENSION P(1),K(5),A(18),KD(6)
0003            DATA LINE,LPP,ISEG,ID/9999,55,0,6/
0004            IF(LINE.LT.LPP)GO TO 1
0005            LINE=0
0006            WRITE(ID,102)KD
0007            WRITE(ID,100)
0008     1      ISEG=ISEG+1
0009            LINE=LINE+1
0010            K(1)=P(1)+0.5
0011            LPP(2)+0.5
0012            CALL SEP(L,K(2))
0013            LPP(3)+0.5
0014            CALL SEP(L,K(4))
0015            DO 2 I=1,18
0016            J=I+3
0017     2      A(I)=P(J)
0018            WRITE(ID,101)ISEG,K,A
0019     3      RETURN
0020            ENTRY INITS
0021            ISEG=0
0022            LINE=9999
0023            GO TO 3
0024     101    FORMAT(1X,T5,1X,T3,1X,8I1,18F6.1)
0025     100    FORMAT(/' LINE',1X,'DAY',2X,'CUT',3X,'T 1',3X,'T 2',3X,'T 3',3X,'T
               1 4',3X,'T 5',3X,'T 6',3X,'T 7',3X,'T 8',3X,'T 9',3X,'T10',3X,'T11'
               2,3X,'T12',3X,'T13',3X,'T14',3X,'T15',3X,'T16',3X,'T17',4X,'T18')
0026     102    FORMAT(1H1,5X,'GENERATION DATE ',3A2,9X,'ACQUISITION DATE',1X,3A2)
0027            END
```

```
0001            SUBROUTINE GETEXP(IE,PA)
0002            IF(IE.LT.0)GO TO 1
0003            PA=10.**IE
0004            GO TO 2
0005      1     KE=-IE
0006            PA=10.**KE
0007            PA=1.0/PA
0008      2     RETURN
0009            END
```

```
0001          SUBROUTINE SEP(KN,KO)
0002          DIMENSION KO(1)
0003          KT=KN/10
0004          KO(1)=KT
0005          KO(2)=KN-KT*10
0006          RETURN
0007          END
```

```
0001            SUBROUTINE POPI(F,KD)
0002            DIMENSION F(1),K(6),A(7),KD(6)
0003            DATA LINE,LPP,ISEG,IO/9999,55,0,6/
0004            IF(LINE.LT.LPP)GO TO 1
0005            WRITE(IO,102)KD
0006            LINE=0
0007            WRITE(IO,100)
0008      1     ISEG=ISEG+1
0009            LINE=LINE+1
0010            J=0
0011            K(1)=F(1)+0.5
0012            L=F(2)+0.5
0013            CALL SEP(L,K(2))
0014            L=F(3)+0.5
0015            CALL SEP(L,K(4))
0016            K(6)=F(4)+0.5
0017            DO 3 I=5,8
0018            J=J+1
0019      3     A(J)=F(I)
0020            A(5)=F(11)
0021            A(6)=F(14)
0022            A(7)=F(22)
0023            WRITE(IO,101)ISEG,K,A
0024      4     RETURN
0025            ENTRY INIT1
0026            ISEG=0
0027            LINE=9999
0028            GO TO 4
0029      100   FORMAT(/' LINE',' DAY',3X,'CUT',1X,'SITE',3X,'PYRA',5X,'BP',
               11X,' W/SPD',1X,' W/DIR',13X,'T/WET',13X,'T/DRY',41X,'REL H'/)
0030      101   FORMAT(1X,I5,2X,I2,2X,4I1,2X,I3,F7.2,3F7.1,2(12X,F6.1),40X,F6.1)
0031      102   FORMAT('1',5X,'GENERATION DATE ',3A2,9X,'ACQUISITION DATE',1X,3A2)
0032            END
```