PROGRAM DOCUMENTATION

ALSEP PRINCIPAL INVESTIGATOR EXPERIMENT FORMATS (ALSEPPI)

Program Q776
Job Order 83-14

Produced By

Lockheed Electronics Company, Inc.
Houston Aerospace Systems Division
Houston, Texas

Under Contract NAS 9-12200

For

COMPUTATION AND ANALYSIS DIVISION

National Aeronautics and Space Administration

LYNDON B. JOHNSON SPACE CENTER

Houston, Texas

August 1973

LEC-0378

PROGRAM DOCUMENTATION
ALSEP PRINCIPAL INVESTIGATOR
EXPERIMENT FORMATS
(ALSEPPI)

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LIST OF ATTACHMENTS

Number	Title
1	Lead Card Setup
2	Deck Setup
3	Run Request Card
4	Flow Chart
5	Program Listing
6	Sample Input
7	Sample Output
8	Correspondence
9	Diagnostic Messages

UNIT I

PROGRAM ABSTRACT AND HISTORY OF USE

A. ABSTRACT

ALSEPPI is a program used to format Principal Investigator (PI) tapes for various experiments on the CDC 3200 computer from ALSEP data stored on the 821 disk file or from an Other Data (OD) tape if data is not available on the disk.

B. PROGRAM HISTORY

ALSEPPI was written in 3200 COMPASS for the CDC 3200 Real-Time Scope at the NASA DRC Telemetry Systems by Rodolfo M. Rodriguez, Lockheed Electronics Company, Inc., Houston, Texas, in July, 1972. It was updated for Apollo 17 in September, 1972. ALSEPPI will be a part of the ALSEP data processing packages on the CDC 3200 computer.

UNIT II

PROGRAM USERS INFORMATION

A. IDENTIFICATION

Title:	ALSEPPI
Author:	Rodolfo M. Rodriguez
Date:	October 1972
Installation:	MSC, Houston, Texas
Authorization:	Contract Number NAS 9-12200
Source Language:	CDC 3200 COMPASS
Computer Configuration:	CDC 3200

B. DESCRIPTION OF PROGRAM REQUEST

See attachment 8, Correspondence.

C. USAGE

1. Input Data Descriptions:

   See attachment 6.

2. Lead Card Setup:

   See attachment 1.

3. Deck Setup:

   See attachment 2.

4. Tape Assignments:

   See attachment 3, Run Request Card.

5. Restrictions:

   None

6. Diagnostic Messages:

   See attachment 9.

7. Labels, Save-Tapes, Output Disposition:

   Save labels are required for all output tapes.
   Printer output should be sent to requester.

8. Output Formats:

   See attachment 7.

9. Nonstandard System Requirements:

   821 disk file
   Four tape units

10. Running Time:

    Four to 6 minutes per 1 day of data

D. ANALYSIS

ALSEPPI is designed to format Principal Investigator (PI) tapes from ALSEP data stored on the 821 disk file or from tape if the data is not available on the 821 disk. The program reads all the lead cards, selects the labels, and writes the labels on the output tapes. The lead card information is used to select the experiments, the days, and the mission to be processed. The ALSEP data is read from the 821 disk file in a double buffer operation. The first buffer is processed while the next is being read in.

Up to three experiments can be selected for each day of data to be output on individual PI digital tapes.

ALSEPPI expects the input data to be stored in the 821 disk file. As much as 45 days of ALSEP data can be stored on the OD area of the disk. The directory containing the address and mission number of the data indexed by day is read in, and a search is made for the address on the disk of data for the day and mission to be processed. If the data is not on the disk, the program will request the input data on tape unit 1. The output is written on tape unit 2, 3, or 4.

A tape for each experiment of the first day requested will be selected using tape 2 first, then 3 and 4 as needed. Two label records will be written on each tape. The experiment code and tape number are printed on the typewriter to indicate which experiments are active and on what unit. The program runs without operator control and will stop at the end of operation or at an error (in which case an error message will appear). In some cases, the problem may be corrected and the program can continue by pushing GO, if desired. The program continues to the end-of-job where it stops with the message "JOB COMPLETED...ALSEPPI" on the typewriter. A message showing status at the end of each day processed or each tape completion is printed on the printer. This printer output is returned to the requester. Tapes that are rewound and selected are saved using labels attached to the request sheet.

The program is capable of generating at least nine different experiment (PI) tapes which are selected by lead card information. These experiments are grouped in different combinations for each Apollo mission. Each can have different durations of 2-, 3-, or 4-day periods. A table of the experiments for each mission, duration limits, and a recommended setup for each group to eliminate having to change the tapes hurriedly is attached. There also are times when only one day of data is required.

A day termination option is available by setting sense switch 2 to ON. The program will terminate the experiments being processed at the end of the day. This option may be used to terminate on any day of the processing cycle in case the next day is not available or desired. A message is written on the typewriter at the end of each day.

Two other sense switch options are available. Sense switch 1 will obtain a core dump at the end of the job; sense switch 3 will stop typing the mode error messages on the typewriter. Mode error messages are data induced on the CCGE experiment, and after a trend has been established the operator may wish to discontinue the typing.

The program maintains data quality by checking data status, time status, tape parity errors, and disk errors. The data status word and the time status word are checked during every scan. No scan is accepted unless both the data and the time status are 5 or greater. Parity errors on the

ALSEP DATA PROCESSING GROUPS

Mission Number	Experiment	Duration in Days
12	CCGE	4
	Solar Winds	3*
	Side	3*
14	Engrg. & Hskg.	4
	Charged Particle (1st 2 days)	2
	Side	3*
	CCGE	4
	Charged Particle (2nd 2 days)	2
	Side - catchup on every 4th run	3
15	ENGRG. & Hskg.	4
	Heat Flow	4
	CCGE	4
	Magnetometer	3
	Solar Winds	3
	Side	3
16	ENGRG. & Hskg.	4
	Magnetometer	3*
17	ENGRG. & Hskg.	4
	LEAM	3*
	LMS	3*
	Heat Flow	4

* Three-day experiment will have to catch up for the one-day slip every run.

NOTE: This is only a recommended grouping. If possible, a more efficient method or group should be used to adjust to operating conditions.

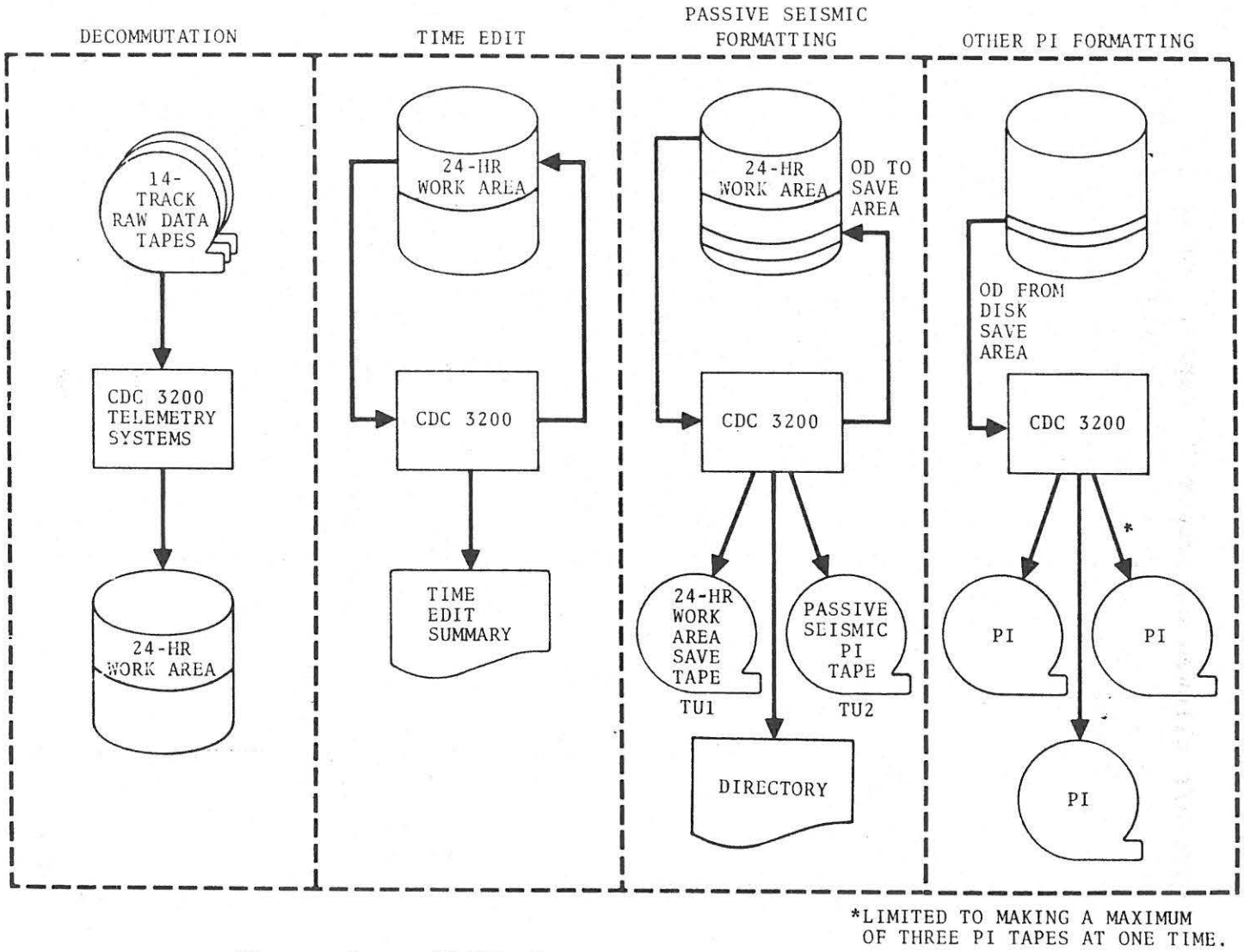


Figure 1. – ALSEP data processing flow chart.

input tape are reread nine times before tagging them as parity records. Flagged parity records are not processed.

No parity errors are allowed on output PI tapes. On a parity error indication, the tape is backspaced, the bad spot is skipped, and the record is rewritten.

E. FLOW CHARTS

See attachment 4.

F. STORAGE REQUIREMENTS

Program	$11,727_8$ locations
Comma	$14,600_8$ locations
Data	0

G. LIST OF SUBROUTINES

PRINT
DSKDRV
TPDRIVE

H. LOCATION OF SOURCE AND BINARY DECKS

Lockheed Electronics Company, Inc., Data Processing Systems, will maintain all source and binary decks associated with this program.

I. PROGRAM LISTING

See attachment 5.

J. CORRESPONDENCE

See attachment 8.

ATTACHMENT 1

LEAD CARD SETUP

CARD NO. 1

JOB 8048

NAME ALSEPPI

LEAD CARD SET UP

PROGRAMMER Rodriguez DATE 0372

FIELD I. D.	CARD COLUMNS	FORMAT	SYMBOLIC NAME	IDENTIFICATION
1	1-2	A2	ANUM	ALSEP mission number, i.e., 12, 14,
				15, 16, or 17
2	7-12	A6	LDATE	Spare or (ΔΔ1972)

COMMENTS

CARD NO. 2
JOB 8048
NAME ALSEPPI

LEAD CARD SET UP PAGE NO. 2 OF 3
PROGRAMMER Rodriguez DATE 0372

FIELD I. D.	CARD COLUMNS	FORMAT	SYMBOLIC NAME	IDENTIFICATION
1	1-6	A6	--	Experiment identification, i.e.,
				ENGRNG, MAGEXP, HEATFL, SOLWDS,
				SIDE$\Delta\Delta$, CCGE$\Delta\Delta$, CPLSPE, LEAMEX, or
				LMSEXP
2	13-16	A6	--	Starting day for processing of this
				experiment. (Left justified.)

COMMENTS One card for each PI tape to be written.

CARD NO. 3

JOB 8048

NAME ALSEPPI

LEAD CARD SET UP

PROGRAMMER Rodriguez DATE 0372

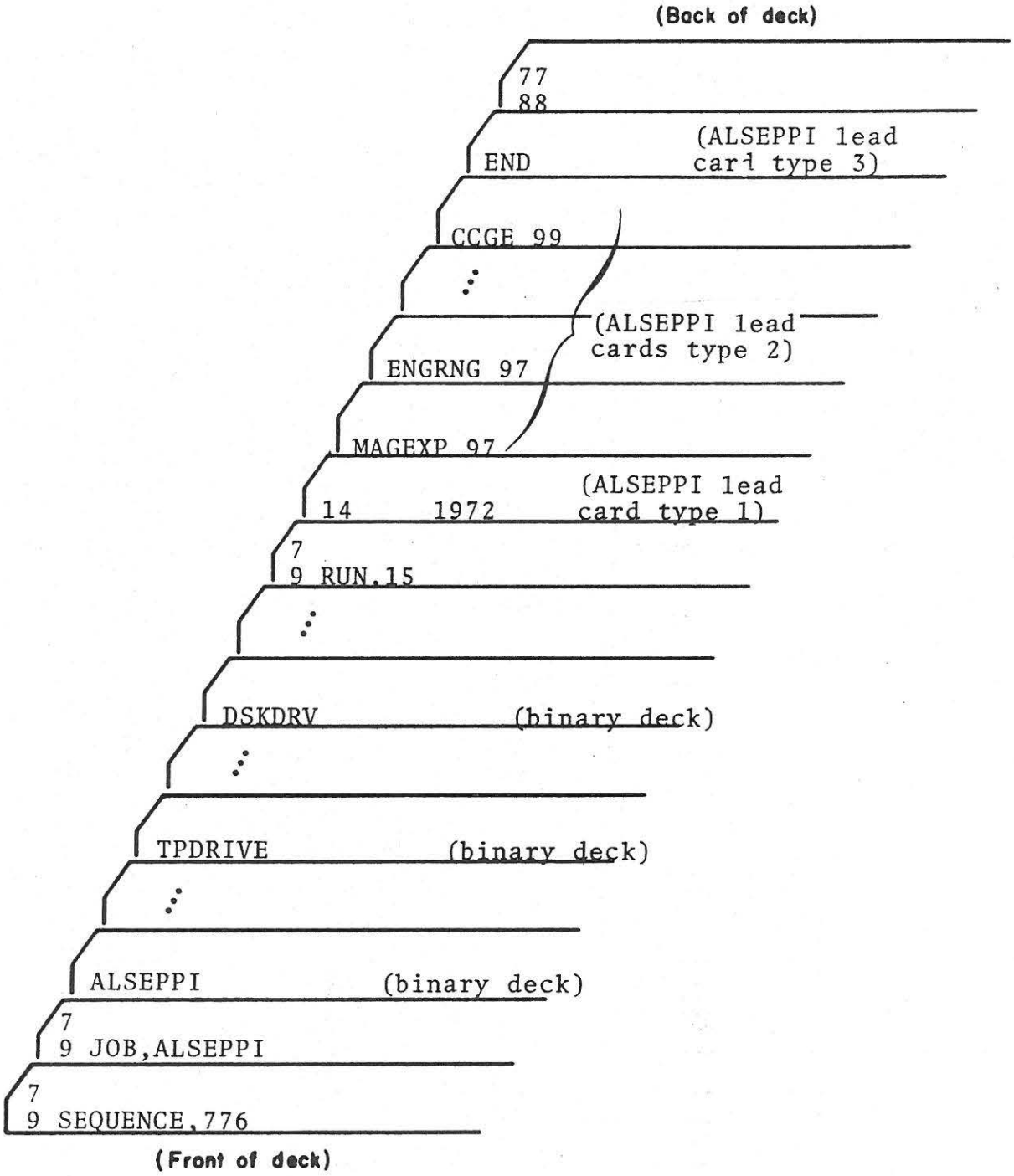
FIELD I. D.	CARD COLUMNS	FORMAT	SYMBOLIC NAME	IDENTIFICATION
1	1-3	A3	--	"END"

COMMENTS Last card terminates reading of lead cards.

ATTACHMENT 2

DECK SETUP

DECK SETUP FOR PROGRAM ALSEPPI PAGE NO. 1 OF 1



MASD 060

ATTACHMENT 3

RUN REQUEST CARD

INSTRUCTIONS FOR DATA REDUCTION COMPLEX COMPUTER RUNS

(DO NOT FILL IN SHADED AREAS)

PROGRAMMER	BADGE NO.	BOX NO.	PHONE NO.	DATE	PRIORITY & INITIALS
XXXXX	XXX	XXX	XXX	0772	

DIVISION CODE	PROG. NO.	PROJ. NO.	EST. TIME	MAX. TIME	LINES OUTPUT	DECK NO.
FD56	Q776	8048A	6	10	50	1

OPERATING SYSTEM		TYPE OF RUN	LOG NUMBER
1108 FORTRAN V ☐	3200 SCOPE ☒	PROD ☒ TEST ☐	COMPUTER REQUIREMENTS
1108 FORTRAN IV ☐	3200 SMARTS ☐	OTHER (EXPLAIN BELOW)	1108 ☐ 3200 ☒
1108 OTHER ☐	3200 OTHER ☐		OTHER

INPUT TAPES				OUTPUT TAPES					
RACK	UNIT	REEL NO.	FILE NAME	UNIT	REEL NO.	FILE NAME	C	SAVE	PROCESSING REQUIRED
	1	(INPUT)		2				*	MAGE
		(TAPE IF		3				*	HEATFL
		USED)		4				*	SIDE

WORKING TAPES						
				4050 ☐	REEL NO.	NO. FRAMES
				16 MM ☐ 35 MM ☐		

ABNORMAL STOPS	TOTAL TAPE DRIVES USED	ACTUAL TIME USAGE
STOP AT LOC. $R:	DUMP INSTRUCTIONS	STOP
LOOPING: LOC. THRU	NO DUMP	
EXCESS OUTPUT	DUMP ON STOP	START
EXCESS TIME	DUMP ON LOOP	
	OTHER	

PROGRAMMER'S COMMENTS:

ALSEPPI - Apollo 15, Days 117-120
EXPS-MAG,HEATFL,SIDE.

OPERATOR'S COMMENTS

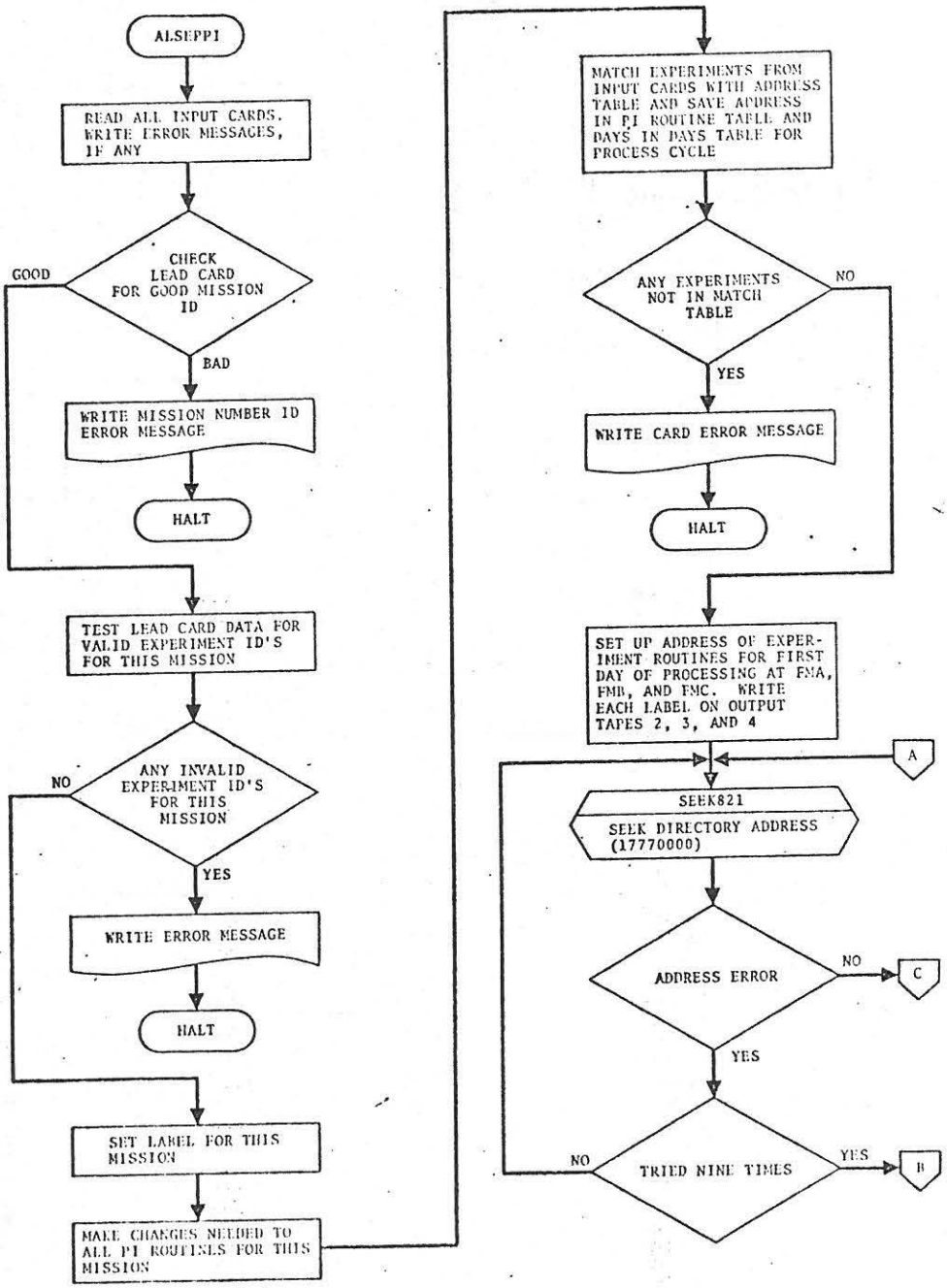
SYSTEM OPERATOR

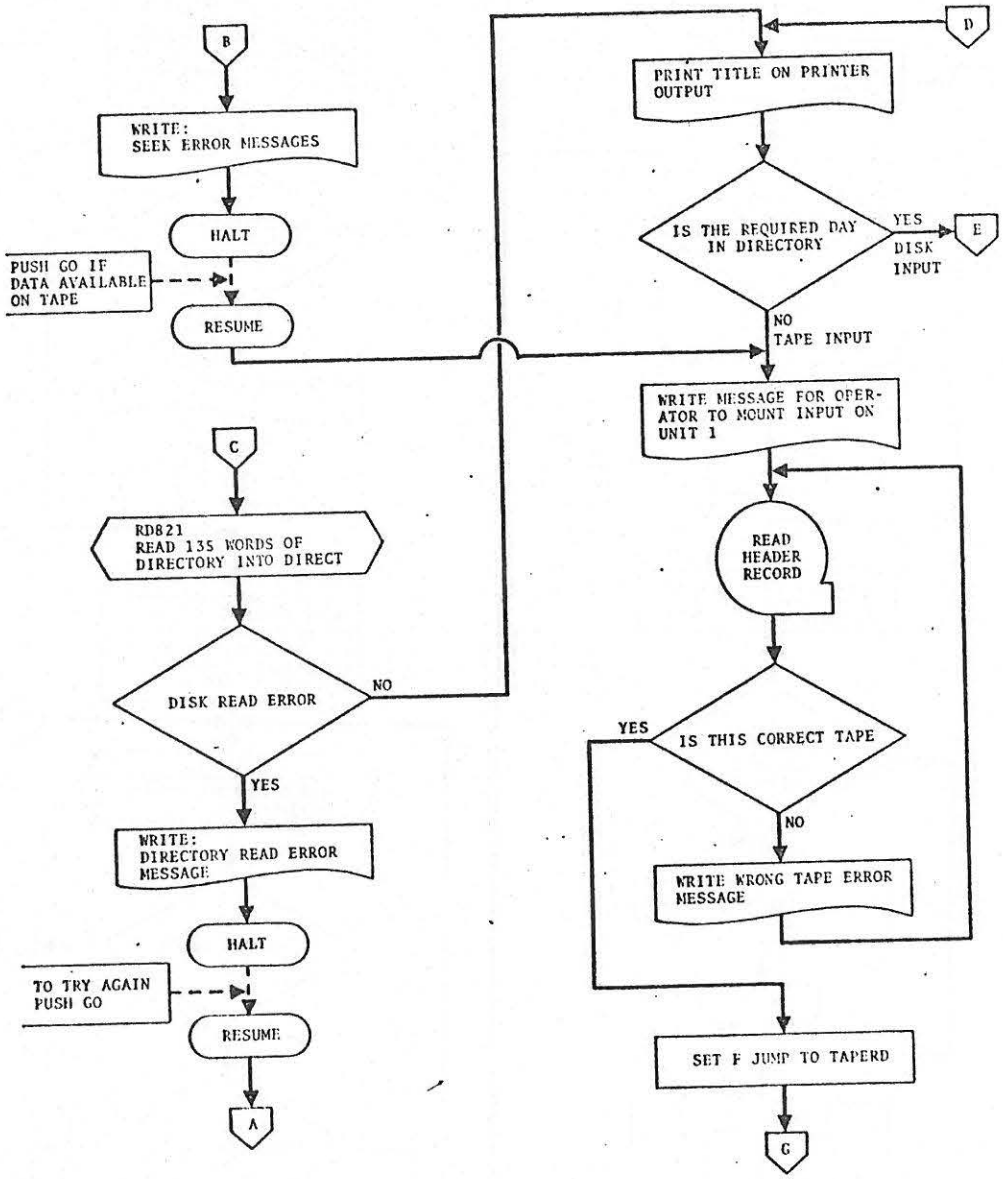
MSC FORM 588A (REV SEP 68)

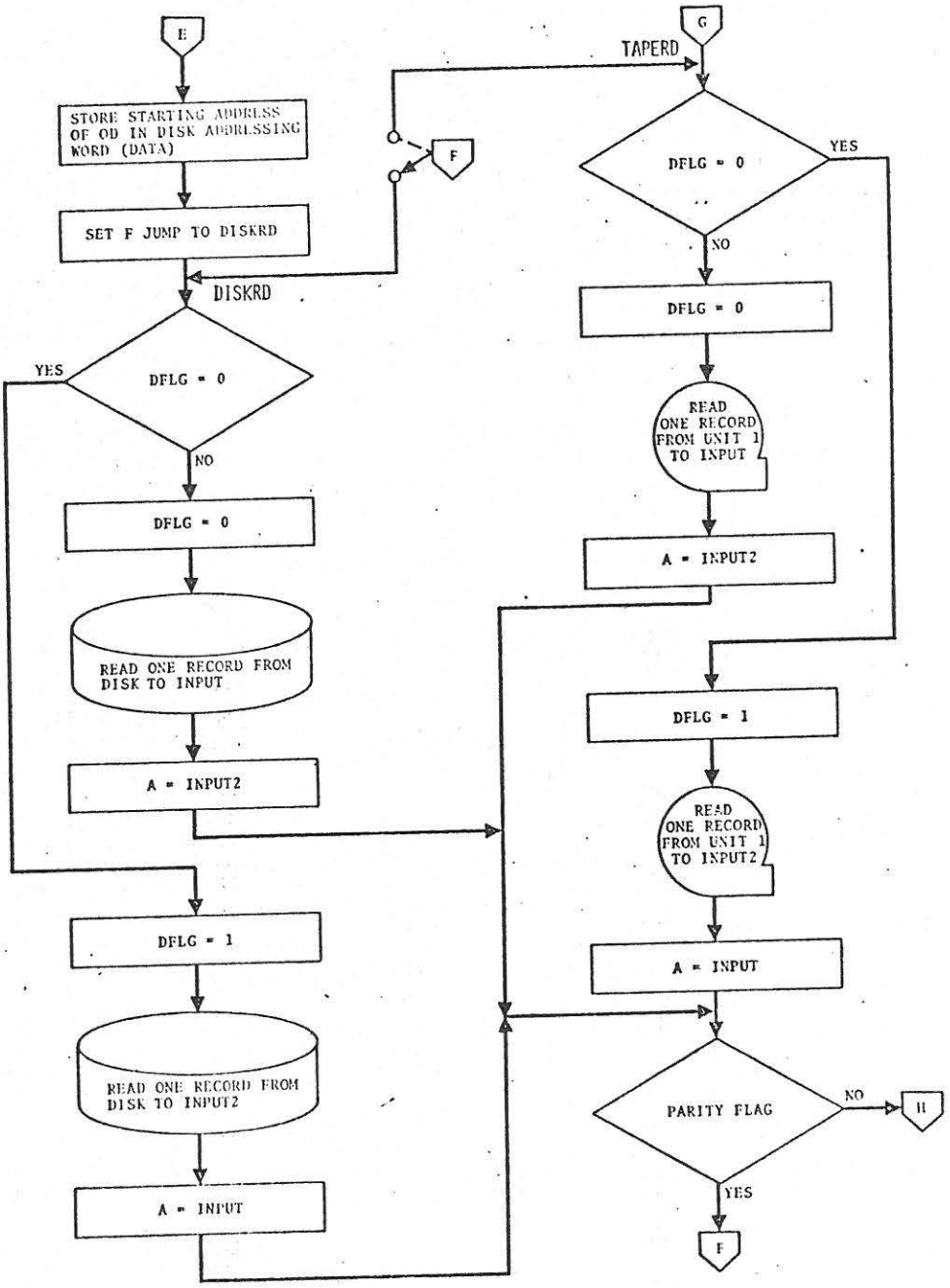
NOTE: Tape assignments are determined by the lead cards. The first experiment (MAGE) is assigned to tape 2, the second to tape 3, and the third to tape 4, if needed. The fourth experiment selected will be assigned to the next available tape, starting with 2, 3, or 4.

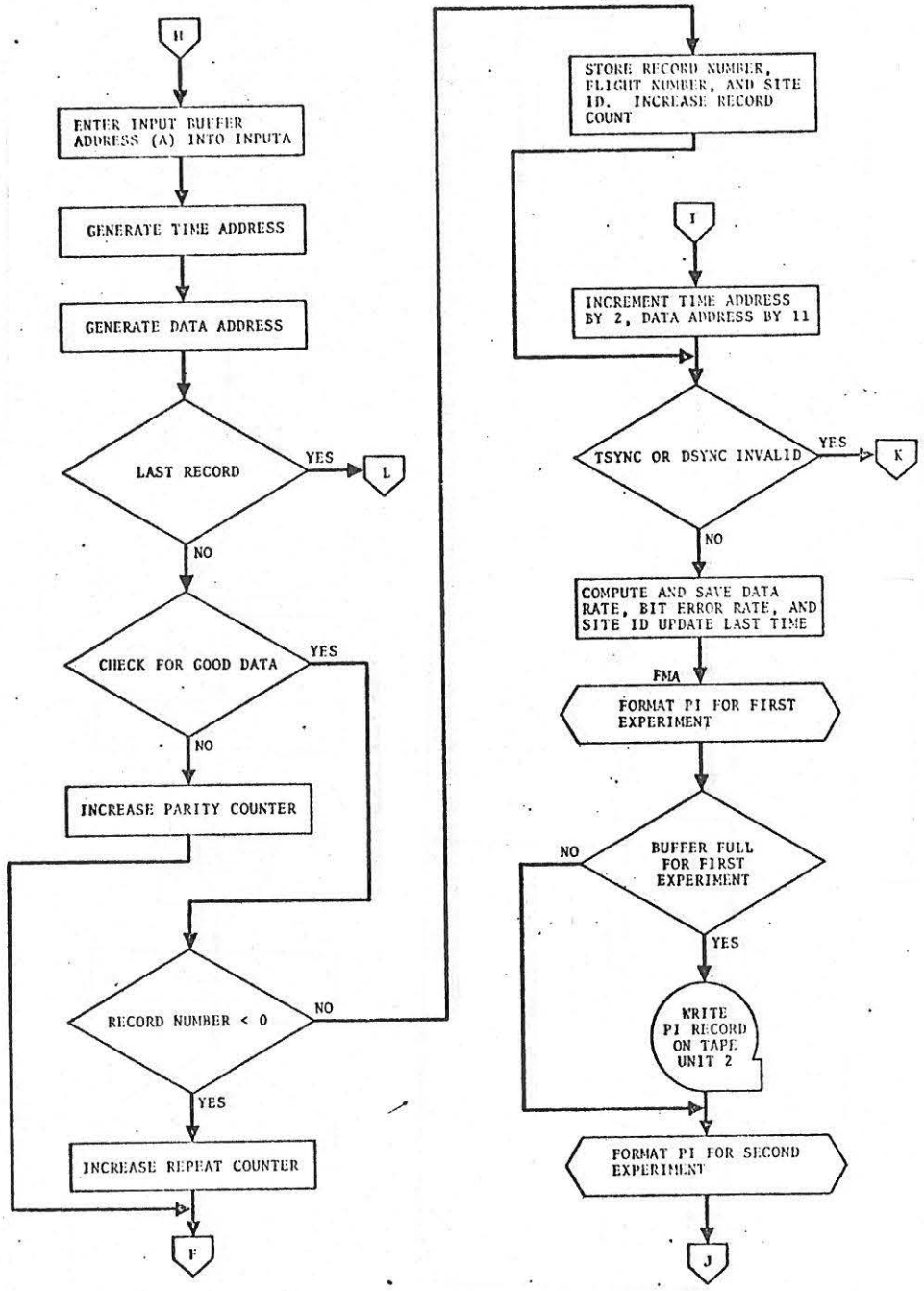
ATTACHMENT 4

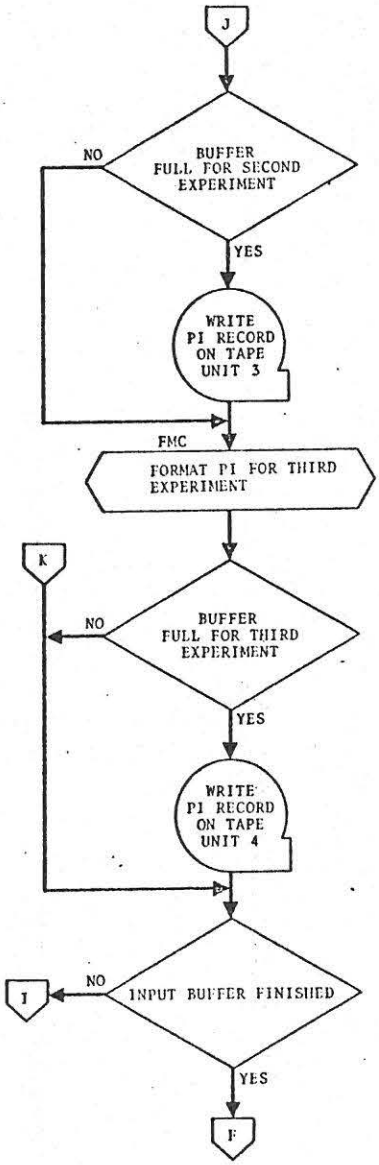
FLOW CHART

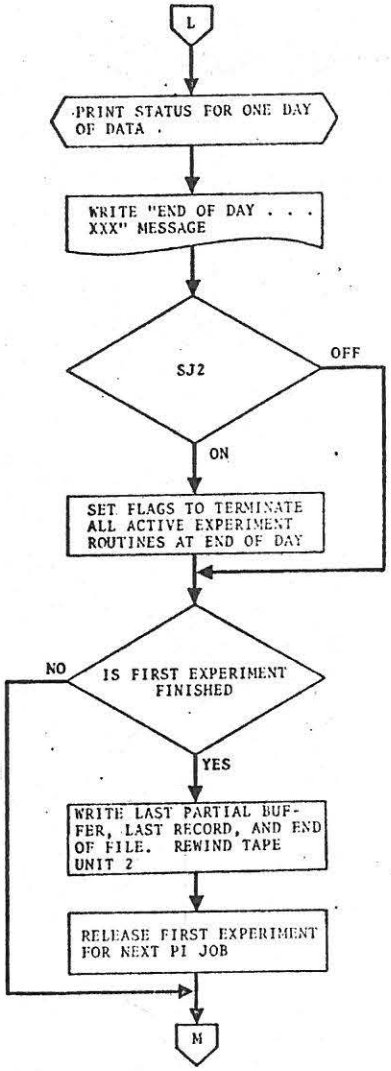

ALSEPPI
READ ALL INPUT CARDS. WRITE ERROR MESSAGES, IF ANY
CHECK LEAD CARD FOR GOOD MISSION ID
GOOD
BAD
WRITE MISSION NUMBER ID ERROR MESSAGE
HALT
TEST LEAD CARD DATA FOR VALID EXPERIMENT ID'S FOR THIS MISSION
ANY INVALID EXPERIMENT ID'S FOR THIS MISSION
NO
YES
WRITE ERROR MESSAGE
HALT
SET LABEL FOR THIS MISSION
MAKE CHANGES NEEDED TO ALL PI ROUTINES FOR THIS MISSION
MATCH EXPERIMENTS FROM INPUT CARDS WITH ADDRESS TABLE AND SAVE ADDRESS IN PI ROUTINE TABLE AND DAYS IN DAYS TABLE FOR PROCESS CYCLE
ANY EXPERIMENTS NOT IN MATCH TABLE
NO
YES
WRITE CARD ERROR MESSAGE
HALT
SET UP ADDRESS OF EXPERIMENT ROUTINES FOR FIRST DAY OF PROCESSING AT FMA, FMB, AND FMC. WRITE EACH LABEL ON OUTPUT TAPES 2, 3, AND 4
A
SEEK821
SEEK DIRECTORY ADDRESS (17770000)
ADDRESS ERROR
NO
C
YES
TRIED NINE TIMES
NO
YES
B

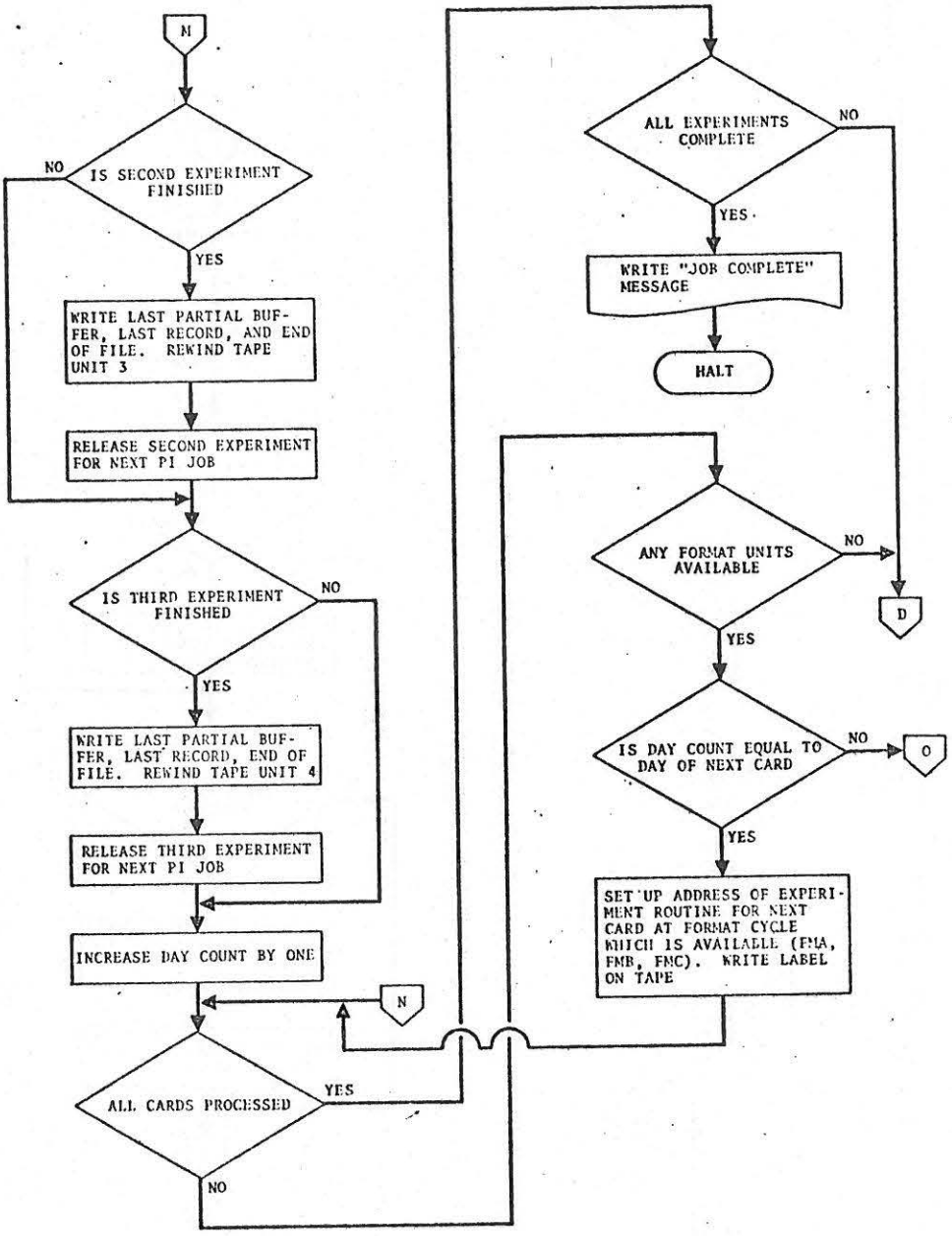

B
WRITE:
SEEK ERROR MESSAGES
HALT
PUSH GO IF
DATA AVAILABLE
ON TAPE
RESUME
C
RD821
READ 135 WORDS OF
DIRECTORY INTO DIRECT
DISK READ ERROR
NO
YES
WRITE:
DIRECTORY READ ERROR
MESSAGE
HALT
TO TRY AGAIN
PUSH GO
RESUME
A
D
PRINT TITLE ON PRINTER
OUTPUT
IS THE REQUIRED DAY
IN DIRECTORY
YES
DISK
INPUT
E
NO
TAPE INPUT
WRITE MESSAGE FOR OPER-
ATOR TO MOUNT INPUT ON
UNIT 1
READ
HEADER
RECORD
YES
IS THIS CORRECT TAPE
NO
WRITE WRONG TAPE ERROR
MESSAGE
SET F JUMP TO TAPERD
G

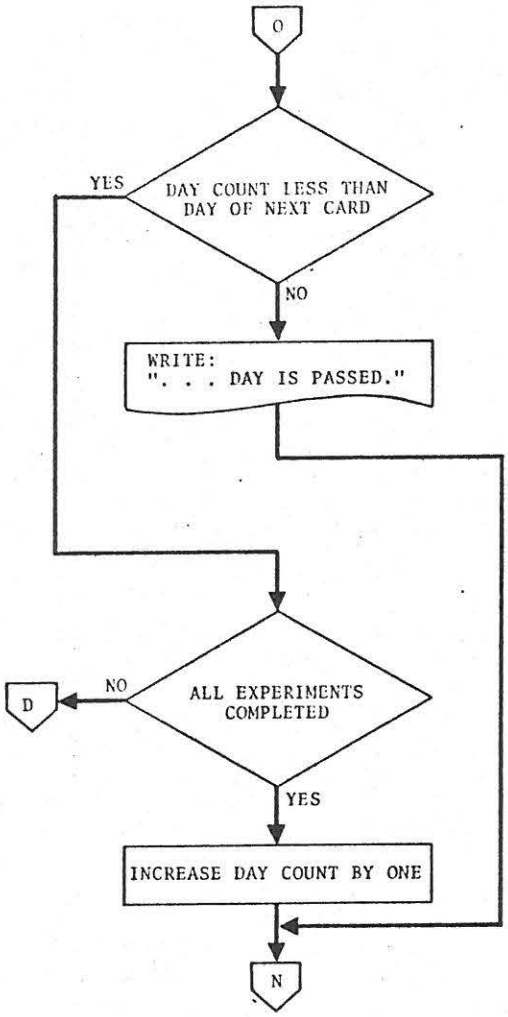

E
STORE STARTING ADDRESS OF OD IN DISK ADDRESSING WORD (DATA)
SET F JUMP TO DISKRD
F
DISKRD
DFLG = 0
YES
NO
DFLG = 0
READ ONE RECORD FROM DISK TO INPUT
A = INPUT2
DFLG = 1
READ ONE RECORD FROM DISK TO INPUT2
A = INPUT
G
TAPERD
DFLG = 0
YES
NO
DFLG = 0
READ ONE RECORD FROM UNIT 1 TO INPUT
A = INPUT2
DFLG = 1
READ ONE RECORD FROM UNIT 1 TO INPUT2
A = INPUT
PARITY FLAG
NO
H
YES
F


H
ENTER INPUT BUFFER ADDRESS (A) INTO INPUTA
GENERATE TIME ADDRESS
GENERATE DATA ADDRESS
LAST RECORD
YES
L
NO
CHECK FOR GOOD DATA
YES
NO
INCREASE PARITY COUNTER
RECORD NUMBER < 0
NO
YES
INCREASE REPEAT COUNTER
F
STORE RECORD NUMBER, FLIGHT NUMBER, AND SITE ID. INCREASE RECORD COUNT
I
INCREMENT TIME ADDRESS BY 2, DATA ADDRESS BY 11
TSYNC OR DSYNC INVALID
YES
K
NO
COMPUTE AND SAVE DATA RATE, BIT ERROR RATE, AND SITE ID UPDATE LAST TIME
FMA
FORMAT PI FOR FIRST EXPERIMENT
BUFFER FULL FOR FIRST EXPERIMENT
NO
YES
WRITE PI RECORD ON TAPE UNIT 2
FORMAT PI FOR SECOND EXPERIMENT
J


J
BUFFER FULL FOR SECOND EXPERIMENT
NO
YES
WRITE PI RECORD ON TAPE UNIT 3
FMC
FORMAT PI FOR THIRD EXPERIMENT
K
BUFFER FULL FOR THIRD EXPERIMENT
NO
YES
WRITE PI RECORD ON TAPE UNIT 4
INPUT BUFFER FINISHED
NO
I
YES
F


L
PRINT STATUS FOR ONE DAY OF DATA .
WRITE "END OF DAY . . . XXX" MESSAGE
SJ2
OFF
ON
SET FLAGS TO TERMINATE ALL ACTIVE EXPERIMENT ROUTINES AT END OF DAY
IS FIRST EXPERIMENT FINISHED
NO
YES
WRITE LAST PARTIAL BUFFER, LAST RECORD, AND END OF FILE. REWIND TAPE UNIT 2
RELEASE FIRST EXPERIMENT FOR NEXT PI JOB
M


N
IS SECOND EXPERIMENT FINISHED
NO
YES
WRITE LAST PARTIAL BUFFER, LAST RECORD, AND END OF FILE. REWIND TAPE UNIT 3
RELEASE SECOND EXPERIMENT FOR NEXT PI JOB
IS THIRD EXPERIMENT FINISHED
NO
YES
WRITE LAST PARTIAL BUFFER, LAST RECORD, END OF FILE. REWIND TAPE UNIT 4
RELEASE THIRD EXPERIMENT FOR NEXT PI JOB
INCREASE DAY COUNT BY ONE
N
ALL CARDS PROCESSED
YES
NO
ALL EXPERIMENTS COMPLETE
NO
YES
WRITE "JOB COMPLETE" MESSAGE
HALT
ANY FORMAT UNITS AVAILABLE
NO
D
YES
IS DAY COUNT EQUAL TO DAY OF NEXT CARD
NO
O
YES
SET UP ADDRESS OF EXPERIMENT ROUTINE FOR NEXT CARD AT FORMAT CYCLE WHICH IS AVAILABLE (FMA, FMB, FMC). WRITE LABEL ON TAPE


O
DAY COUNT LESS THAN DAY OF NEXT CARD
YES
NO
WRITE: ". . . DAY IS PASSED."
ALL EXPERIMENTS COMPLETED
NO
D
YES
INCREASE DAY COUNT BY ONE
N

ATTACHMENT 5

PROGRAM LISTING

EXTERNAL SYMBOLS
TAPESEL
TAPERD
TAPEWRT
R0821
USKINIT
USKSTAT
SEEK821
PRINT

ENTRY-POINT SYMBOLS
ALSEPPI 00000

LENGTH OF SUBPROGRAM 11727
LENGTH OF COMMON 14690
LENGTH OF DATA 00000

```
                                EXPERIMENT PROGRAM.

PROGRAMMER.....RODOLFO M. FOURIGUEZ - LEC

DATE..........APRIL 1972

LOCATION.......NASA/MSC

LANGUAGE.......COMPASS 3200

COMPUTER.......CDC 3200

ALSEPPI...PROGRAM TO FORMAT PRINCIAPL INVESTIGATOR TAPES
          ON THE CDC3200 COMPUTER FROM ALSEP DATA STORED
          ON THE 821 DISK FILE. THIS PROGRAM IS PART OF
          THE TOTAL ALSEP DATA PROCESSING PACKAGE ON THE
          CDC 3200 COMPUTER.

PROJECT NUMBER IS 80485
```

```
                                                ENTRY    ALSEPPI
                                                EXT      PRINT
                                                EXT      SEEK821
                                                EXT      DSKSTAT
                                                EXT      DSKINIT
                                                EXT      RD821
                                                EXT      TAPEWRT
                                                EXT      TAPERD
                                                EXT      TAPESEL
00000  14000000 14 0 P00000 0  ALSEPPI  NOP      *
00001  00777777 00 1 X77777 3           RTJ      DSKINIT
00002  14100011 14 0  00011 1           ENI      9,1
00003  77002000 77 0  02000 0  CARDCON  CON      2000B,0
00004  01000131 01 0 P00131 0           UJP      CARDRJ
00005  77100005 77 0  00005 1           SEL      5,0            CLEAR CARDREADER
00006  01000005 01 0 P00005 0           UJP      *-1
00007  77200002 77 0  00002 2           EXS      2,0
00010  01000007 01 0 P00007 0           UJP      *-1
00011  74011205 74 0 P11205 0  CARDRD   INPW     0,CARDBUFF,CARDBUFF+20
00012  00011161 00 0 P11161 0
00013  01000011 01 0 P00011 0           UJP      *-2

00014  77200002 77 0  00002 2           EXS      2,0
00015  01000014 01 0 P00014 0           UJP      *-1
                                                                CARDREADER NOT BUSY
00016  77200000 77 0  00000 2           COPY     0
00017  17607777 17 1  07777 2           ANA      77778
00020  05600002 05 1  00002 2           ASG      2
00021  01000037 01 0 P00037 0           UJP      CARDIN

00022  20000130 20 0 P00130 0           LDA      END
00023  21400012 21 1 P00012 0           LDQ,I    CARDRD+1
00024  14600001 14 1  00001 2           ENA      1
00025  34000127 34 0 P00127 0           RAD      CARDS
00026  03400047 03 1 P00047 0           AQJ,EQ   CARDLT
00027  40003076 40 0 P03076 0           STA      STATUS
00030  14600153 14 1 P00153 2           ENA      CARDERA
00031  77600400 77 1  00400 2           PAUS     400B
00032  01000031 01 0 P00031 0           UJP      *-1
00033  00777777 00 1 X77777 3           RTJ      PRINT
00034  14600001 14 1  00001 2           ENA      1
00035  40000126 40 0 P00126 0           STA      CARDERF
00036  01000047 01 0 P00047 0           UJP      CARDLT
00037  21400012 21 1 P00012 0  CARDIN.  LDQ,I    CARDRD+1       LOAD FIRST DATA WORD
00040  14600012 14 1  00012 2           ENA      10             INCREASE CARDBUFFER ADDRESS BY 10
00041  34000011 34 0 P00011 0           RAD      CARDRD           FOR NEXT CARD
00042  34000012 34 0 P00012 0           RAD      CARDRD+1
00043  14600001 14 1  00001 2           ENA      1
00044  34000127 34 0 P00127 0           RAD      CARDS
00045  20000130 20 0 P00130 0           LDA      END

00046  03500011 03 1 P00011 1           AQJ,NE   CARDRD

00047  77100000 77 0  00000 1  CARDLT   SEL      0,0            RELEASE CARDREADER
```

```
00050  01000047 01 0 P00047 0          UJP     *-1                                    00082
                                                                                      00083
00051  20000126 20 0 P00126 0          LDA     CARDERF                                00084
00052  04600000 04 1  00000 2          ASE     0                                      00085
00053  01000235 01 0 P00235 0          UJP     CARDERQ                                00086
                                                                                      00087
00054  20011162 20 0 P11162 0          LDA     CARDBUFF+1                             00088
00055  40000350 40 0 P00350 0          STA     LABEL+4                                00089
00056  20011163 20 0 P11163 0          LDA     CARDBUFF+2                             00090
00057  40000351 40 0 P00351 0          STA     LABEL+5                                00091
00060  20000127 20 0 P00127 0          LDA     CARDS                                  00092
00061  15477773 15 1  77773 0          INA,S   -4                                     00093
00062  40000127 40 0 P00127 0          STA     CARDS                                  00094
00063  44000677 44 0 P00677 0          SWA     EXLAST                                 00095
00064  14100005 14 0  00005 1          ENI     5,1                                    00096
00065  20011161 20 0 P11161 0          LDA     CARDBUFF                               00097
00066  14577777 14 1  77777 1          ENQ,S   77777B                                 00098
00067  06100077 06 0 P00077 1          MEQ     ALTAB,1                                00099
00070  01000104 01 0 P00104 0          UJP     MNER                                   00100
00071  01500072 01 1 P00072 1          UJP,I   *+1,1                                  00101
00072  14000305 14 0 P00305 0          NOP     ALSP12                                 00102
00073  14000352 14 0 P00352 0          NOP     ALSP14                                 00103
00074  14000414 14 0 P00414 0          NOP     ALSP15                                 00104
00075  14000460 14 0 P00460 0          NOP     ALSP16                                 00105
00076  14000515 14 0 P00515 0          NOP     ALSP17                                 00106
                                                                                      00107
                                                                                      00108
                                                                                      00109
00077          01026060         ALTAB   BCD     5,12  14  15  16  17                 00110
00100          01046060
00101          01056060
00102          01066060
00103          01076060
                                                                                      00111
                                                                                      00112
                                                                                      00113
00104  40000125 40 0 P00125 0  MNER    STA     MNERR+8                                00114
00105  14600112 14 1 P00112 2          ENA     MNERA     MISSION NUMBER (ID) ERROR    00115
00106  77500400 77 1  00400 2          PAUS    400B                                   00116
00107  01000106 01 0 P00106 0          UJP     *-1                                    00117
00110  00700033 00 1 A00033 3          RTJ     PRINT                                  00118
00111  00077777 00 0  77777 0          HLT     **                                     00119
                                                                                      00120
00112  03000115 03 0 P00115 0  MNERA   03      MNERR                                  00121
00113          00440044                 VFD     A12/36,A12/36                          00122
00114  05000000 05 0  00000 0          05                                             00123
00115          69255151         MNERR   BCD     9, ERROR IN MISSION (NUMBER) ID-       00124
00116          46516031
00117          45604431
00120          62623146
00121          45607445
00122          64442225
00123          51346031
00124          24406000
```

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3300 COMPASS/RTS VER 1.1          .....ALSEPPI ALSEP PRINCIAPL INVESTIGATOR                12/12/12  PAGE     5
     00125          60606060
                                                                                                                  00125
                                                                                                                  00126
                                                                                                                  00127
     00126          00000000        CARDERF  OCT      0        CARD ERROR FLAG   (0=NO ERRORS)                    00128
     00127          00000001        CARDS    OCT      1                                                          00129
     00130          25452460        END      BCD      1,END                                                      00130
```

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                                    ***     CARD READER REJECTS
00131  02500003 02 1 P00003 1  CARDRJ   IJD     CARDCON,1
00132  14600137 14 1 P00137 2           ENA     CMSGA
00133  00700110 00 1 X00110 3           RTJ     PRINT
00134  77600400 77 1  00400 2           PAUS    4008
00135  01000134 01 0 P00134 0           UJP     *-1
00136  00077777 00 0  77777 0           HLT     **

00137  03000142 03 0 P00142 0  CMSGA    03      CMSG
00140          00440044                VFD     A12/36,A12/36
00141  05000000 05 0  00000 0           05
00142          60232145        CMSG     BCD     9, CANNOT CONNECT TO CARDREADER.
00143          45466360
00144          23464345
00145          25236360
00146          63466023
00147          21512451
00150          25212425
00151          51336060
00152          60606060

00153  03000162 03 0 P00162 0  CARDERA  03      CARDERR
00154          00600060                VFD     A12/48,A12/48
00155  02003076 02 0 P03076 0           02      STATUS
00156          00100050                VFD     A12/8,A12/40
00157  01000127 01 0 P00127 0           01      CARDS
00160          00040064                VFD     A12/4,A12/52
00161  05000000 05 0  00000 0           05
00162          60512521        CARDERR  BCD     12, READ ERROR ON CARD INPUT. STAT-        , CARD-
00163          24602551
00164          51465150
00165          46456023
00166          21512460
00167          31454704
00170          63336062
00171          63216340
00172          60606060
00173          60606060
00174          73602321
00175          51244060
00176          60606060                BCD     1,

                                    ****    INVALID EXPERIMENT CODE
00177  01000177 01 0 P00177 0  EXPRB    UJP     *
00200  40000224 40 0 P00224 0           STA     EXPR+7
00201  14600212 14 1 P00212 2           ENA     EXPRA
00202  77600400 77 1  00400 2           PAUS    4008
00203  01000202 01 0 P00202 0           UJP     *-1
00204  00700133 00 1 X00133 3           RTJ     PRINT
00205  77600400 77 1  00400 2           PAUS    4008
00206  01000205 01 0 P00205 0           UJP     *-1
00207  14600001 14 1  00001 2           ENA     1
00210  40000126 40 0 P00126 0           STA     CARDERF
```

```
00211  01400177 01 1 P00177 0          UJP,I    EXPRB
00212  03000215 03 0 P00215 0  EXPRA   03       EXPR
00213          00400040                VFD      A12/32,A12/32
00214  05000000 05 0  00000 0          05
00215          60314565        EXPR    BCD      8, INVALID EXPERIMENT CODE....
00216          21433124
00217          60256747
00220          25513144
00221          23456360
00222          23462425
00223          33333333
00224          60606060

00225  14600232 14 1 P00232 2  EXER    ENA      EXERA
00226  77600400 77 1  00400 2          PAUS     400B
00227  01000226 01 0 P00226 0          UJP      *-1
00230  00700204 00 1 X00204 3          RTJ      PRINT
00231  00077777 00 0  77777 0          HLT      **

00232  03000247 03 0 P00247 0  EXERA   03       QMSG
00233          00220022                VFD      A12/18,A12/18
00234  05000000 05 0  00000 0          05

                                 ****    CARD ERROR QUIT
00235  14600244 14 1 P00244 2  CARDERQ ENA      QMSGA
00236  77600400 77 1  00400 2          PAUS     400B
00237  01000236 01 0 P00236 0          UJP      *-1
00240  00700230 00 1 X00230 3          RTJ      PRINT
00241  77600400 77 1  00400 2          PAUS     400B
00242  01000241 01 0 P00241 0          UJP      *-1
00243  00077777 00 0  77777 0          HLT      **

00244  03000247 03 0 P00247 0  QMSGA   03       QMSG
00245          00000060                VFD      A12/48,A12/48
00246  05000000 05 0  00000 0          05
00247          60232151        QMSG    BCD      12, CARD ERROR ABORT- TRY AGAIN,OR NOTIFY REQUESTOR,
00250          24602551
00251          51465160
00252          21224651
00253          63406063
00254          51706021
00255          27213145
00256          73465160
00257          45466331
00260          26706051
00261          25506425
00262          62634651
```

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00263  21300000 21 0  00000 3  ZA     LDQ     0,3
00264  13000014 13 0  00014 0          SHAQ    12
00265  21300002 21 0  00002 3  ZB     LDQ     2,3
00266  21300011 21 0  00011 3  ZC     LDQ     9,3
00267  12400014 12 1  00014 0  ZD     SHQ     14
00270  01004726 01 0 P04726 0  ZE     UJP     HFLK-1
00271  01005037 01 0 P05037 0  ZF     UJP     HFLGI
00272  01005043 01 0 P05043 0          UJP     HFLGO
00273  41200002 41 0  00002 2  ZG     STQ     2,2
00274  41200005 41 0  00005 2          STQ     5,2
                                                        FOR APOLLO 13
00275  25000263 25 0 P00263 0          LDAQ    ZA
00276  45004155 45 0 P04155 0          STAQ    ENGPM
00277  20000265 20 0 P00265 0          LDA     ZB
00300  40004725 40 0 P04726 0          STA     HFLK-1
00301  20000267 20 0 P00267 0          LDA     ZD
00302  40004727 40 0 P04727 0          STA     HFLK
00303  20000270 20 0 P00270 0          LDA     ZE
00304  40004710 40 0 P04710 0          STA     HFLM
```

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00305  14200012 14 0  00012 2  ALSP12   ENI     10,2          TEST FOR VALID EXPERIMENT IDS
00306  54300127 54 0 P00127 3           LDI     CARDS,3                FOR ALSPE12
00307  14577777 14 1  77777 1  AL12     ENQ,S   77777B
00310  14100005 14 0  00005 1           ENI     5,1
00311  20211161 20 0 P11161 2           LDA     CARDBUFF,2
00312  15200012 15 0  00012 2           INI     10,2
00313  06100337 06 0 P00337 1           MEQ     EXP12,1
00314  00700177 00 1 P00177 3           RTJ     EXPRB
00315  02700307 02 1 P00307 3           IJD     AL12,3
00316  20000126 20 0 P00126 0           LDA     CARDERF
00317  04600000 04 1  00000 2           ASE     0
00320  01000225 01 0 P00225 0           UJP     EXER

00321  14600014 14 1  00014 2           ENA     12
00322  40003060 40 0 P03060 0           STA     ALNUM

00323  25000334 25 0 P00334 0           LDAQ    LBL12         SETS PI TAPE LABEL FOR ALSEP12
00324  40000346 40 0 P00346 0           STA     LABEL+2
00325  41000347 41 0 P00347 0           STQ     LABEL+3
00326  21000336 21 0 P00336 0           LDQ     LBL12+2
00327  20000350 20 0 P00350 0           LDA     LABEL+4
00330  13000014 13 0  00014 0           SHAQ    12
00331  12000014 12 0  00014 0           SHA     12
00332  40000350 40 0 P00350 0           STA     LABEL+4

00333  01000651 01 0 P00651 0           UJP     SETR          CHANGES TO PI ROUTINES FOR ALSEP12
00334          62254721        LBL12    BCD     3,SEPAA/S507
00335          21616205
00336          00076060
00337          25452751        EXP12    BCD     5,ENGRMAGESOLWSIDECCGE
00340          44212725
00341          62464365
00342          62312425
00343          23232725
00344          25452751        LABEL    BCD     6,ENGRNGALSP16A/S511
00345          45272143
00346          62470105
00347          21616205
00350          01016060
00351          60606060
```

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00352 14200012 14 0  00012 2  ALSP14   ENI      10,2      TEST FOR VALID EXPERIMENT IDS FOR ALSEP14   00257
00353 54300127 54 0 P00127 3             LDI      CARDS,3                                            00258
00354 14577777 14 1  77777 1  AL14      ENQ,S    777778                                             00259
00355 14100004 14 0  00004 1             ENI      4,1                                                00260
00356 20211151 20 0 P11151 2             LDA      CARDBUFF,2                                         00261
00357 15200012 15 0  00012 2             INI      10,2                                               00262
00360 06100410 00 0 P00410 1             MEQ      EXP14,1                                            00263
00361 07000177 00 1 P00177 3             RTJ      EXPRH                                              00264
00362 02700354 02 1 P00354 3             IJD      AL14,3                                             00265
00363 20000126 20 0 P00126 0             LDA      CARDERF                                            00266
00364 04500000 04 1  00000 2             ASE      0                                                  00267
00365 01000225 01 0 P00225 0             UJP      EXER                                               00268
                                                                                                     00269
00366 14600016 14 1  00016 2             ENA      14                                                 00270
00367 40000350 40 0 P00350 0             STA      ALNUM                                              00271
                                                                                                     00272
00370 25000405 25 0 P00405 0             LDAQ     LBL14                                              00273
00371 40000346 40 0 P00346 0             STA      LABEL+2                                            00274
00372 41000347 41 0 P00347 0             STQ      LABEL+3                                            00275
00373 21000407 21 0 P00407 0             LDQ      LBL14+2                                            00276
00374 20000350 20 0 P00350 0             LDA      LABEL+4                                            00277
00375 13000014 13 0  00014 0             SHAQ     12                                                 00278
00376 12000014 12 0  00014 0             SHA      12                                                 00279
00377 40000350 40 0 P00350 0             STA      LABEL+4                                            00280
                                                                                                     00281
                                                  CHANGES TO PI ROUTINES FOR ALSEP14                 00282
00400 20000263 20 0 P00263 0             LDA      ZA                                                 00283
00401 40004445 40 0 P04445 0             STA      SIDEM                                              00284
00402 25000263 25 0 P00263 0             LDAQ     ZA                                                 00285
00403 45004155 45 0 P04155 0             STAQ     ENGRM                                              00286
                                                                                                     00287
00404 01000651 01 0 P00651 0             UJP      SETR                                               00288
00405          62254722          LBL14   BCD      3,SEPBA/S509                                       00289
00406          21616295
00407          00116000
00410          25452751          EXP14   BCD      4,ENGRSIDECPLSCCGE                                 00290
00411          62312465
00412          23474362
00413          23232725
```

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00414  14200012 14 0  00012 2  ALSP15   ENI      12,2       TEST FOR VALID EXPERIMENT IDS FOR ALSEP15   00292
00415  54300127 54 0 P00127 3             LDI      CARDS,3                                             00293
00416  14577777 14 1  77777 1  AL15      ENQ,S    77777B                                              00294
00417  14100006 14 0  00006 1             ENI      6,1                                                 00295
00420  20211151 20 0 P11151 2             LDA      CARDBUFF,2                                          00296
00421  15200012 15 0  00012 2             INI      10,2                                                00297
00422  06100452 06 0 P00452 1             MEM      EXP15,1                                             00298
00423  00700177 00 1 P00177 3             RTJ      EXPRR                                               00299
00424  02700415 02 1 P00415 3             IJU      AL10,3                                              00300
00425  20000126 20 0 P00126 0             LDA      CARDERF                                             00301
00426  04600000 04 1  00000 2             ASE      0                                                   00302
00427  01000225 01 0 P00225 6             UJP      EXER                                                00303
                                                                                                       00304
00430  14600017 14 1  00017 2             ENA      15                                                  00305
00431  40000460 40 0 P00460 0             STA      ALNUM                                               00306
                                                                                                       00307
00432  25000447 25 0 P00447 0             LDAQ     LBL15                                               00308
00433  40000346 40 0 P00346 0             STA      LABEL+2                                             00309
00434  41000347 41 0 P00347 0             STQ      LABEL+3                                             00310
00435  21000451 21 0 P00451 0             LDQ      LBL15+2                                             00311
00436  20000350 20 0 P00350 0             LDA      LABEL+4                                             00312
00437  13000014 13 0  00014 0             SHAQ     12                                                  00313
00440  12000014 12 0  00014 0             SHA      12                                                  00314
00441  40000350 40 0 P00350 0             STA      LABEL+4                                             00315
                                                                                                       00316
00442  25000266 25 0 P00266 0             LDAQ     ZC                                                  00317
00443  45004726 45 0 P04726 0             STAQ     HFLK-1                                              00318
00444  20000270 20 0 P00270 0             LDA      ZE                                                  00319
00445  40004710 40 0 P04710 0             STA      HFLM                                                00320
                                                                                                       00321
                                                                                                       00322
00446  01000651 01 0 P00651 0             UJP      SETR                                                00323
00447          62254723          LBL15    BCD      3,SEPCA/S510                                        00324
00450          21016205
00451          01006000
00452          25452751          EXP15    BCD      6,ENGRNAGEHEATSOLWSIDECCGE                          00325
00453          44212725
00454          30252163
00455          62464306
00456          62312425
00457          23232725
```

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00460  14200012 14 0  00012 2  ALSP16  ENI     10,2        TEST FOR VALID EXPERIMENT IDS FOR ALSEP16
00461  54300127 54 0 P00127 3          LDI     CARDS,3
00462  14577777 14 1  77777 1  AL16    ENQ,S   77777B
00463  14100003 14 0  00003 1          ENI     3,1
00464  20211161 20 0 P11161 2          LDA     CARDBUFF,2
00465  15200012 15 0  00012 2          INI     10,2
00466  06100512 06 0 P00512 1          MEQ     EXP16,1
00467  00700177 00 1 P00177 3          RTJ     EXPRB
00470  02700462 02 1 P00462 3          IJD     AL16,3
00471  20000126 20 0 P00126 0          LDA     CARDERF
00472  04600000 04 1  00000 2          ASE     0
00473  01000225 01 0 P00225 0          UJP     EXER

00474  14600020 14 1  00020 2          ENA     16
00475  40003060 40 0 P03060 0          STA     ALNUM

00476  25000507 25 0 P00507 0          LDAQ    LBL16
00477  40000346 40 0 P00346 0          STA     LABEL+2
00500  41000347 41 0 P00347 0          STQ     LABEL+3
00501  21000511 21 0 P00511 0          LDQ     LBL16+2
00502  20000350 20 0 P00350 0          LDA     LABEL+4
00503  13000014 13 0  00014 0          SHAQ    12
00504  12000014 12 0  00014 0          SHA     12
00505  40000350 40 0 P00350 0          STA     LABEL+4
                                                        CHANGES TO PI ROUTINES FOR ALSEP16

00506  01000651 01 0 P00651 0          UJP     SEIR
00507          62254724        LBL16   BCD     3,SEPDA/S511
00510          21616205
00511          01016060
00512          25452751        EXP16   BCD     3,ENGRMAGEHEAT
00513          44212725
00514          30252163
```

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00515  14200012 14 0  00012 2  ALSP17  ENI     10,2          * TEST FOR VALID EXPERIMENT IDS
00516  54300127 54 0 P00127 3          LDI     CARDS,3                    FOR APOLLO 17
00517  14577777 14 1  77777 1  AL17    ENQ,S   77777B
00520  14100004 14 0  00004 1          ENI     4,1
00521  20211161 20 0 P11161 2          LDA     CARDBUFF,2
00522  15200012 15 0  00012 2          INI     10,2
00523  06100556 06 0 P00556 1          MEQ     EXP17,1
00524  00700177 00 1 P00177 3          RTJ     EXPRB
00525  02700517 02 1 P00517 3          IJD     AL17,3
00526  20000126 20 0 P00126 0          LDA     CARDERF
00527  04600000 04 1  00000 2          ASE     0
00530  01000225 01 0 P00225 0          UJP     EXER

00531  14600021 14 1  00021 2          ENA     17
00532  40005060 40 0 P03060 0          STA     ALNUM

00533  25000553 25 0 P00553 0          LDAQ    LBL17
00534  40000346 40 0 P00346 0          STA     LABEL+2
00535  41000347 41 0 P00347 0          STQ     LABEL+3
00536  21000555 21 0 P00555 0          LDQ     LBL17+2
00537  20000350 20 0 P00350 0          LDA     LABEL+4
00540  13000014 13 0  00014 0          SHAQ    12
00541  12000014 12 0  00014 0          SHA     12
00542  40000350 40 0 P00350 0          STA     LABEL+4

                                                    CHANGES TO PI ROUTINES FOR APOLLO 17

00543  25000271 25 0 P00271 0          LDAQ    ZF
00544  40004750 40 0 P04750 0          STA     HFLN
00545  41004775 41 0 P04775 0          STQ     HFLP
00546  25000263 25 0 P00263 0          LDAQ    ZA
00547  45004155 45 0 P04155 0          STAQ    ENGRM
00550  25000273 25 0 P00273 0          LDAQ    ZG
00551  45004157 45 0 P04157 0          STAQ    ENGRM+2

00552  01000651 01 0 P00651 0          UJP     SETR

00553          62470107        LBL17   BCD     3,SP17A/SS12
00554          21616205
00555          01026060
00556          25452751        EXP17   BCD     4,ENGRHEATLEANLMSE
00557          30252163
00560          43252144
00561          43446225
```

```
00562  [illegible]                  LBRRT   UJP     *                        00400
00563  44[illegible]                SWA     MTAP+2                           00401
00564  4400[illegible]              SWA     LBTP+1                           00402
00565  4400[illegible]              SWA     *+2                              00403
00566  0777777 00 1 A77777 3        RTJ     TAPESEL                          00404
00567  [illegible]                  00      02                               00405
00570  [illegible]                  00      TSEL                             00406
00571  772[illegible]               EXS     2,0                              00407
00572  01[illegible]                UJP     *-1                              00408
00573  25[illegible]                LDXQ    0,2                              00409
00574  4000[illegible]              STA     LABEL                            00410
00575  41[illegible]                STQ     LABEL+1                          00411
00576  4[illegible]                 STA     MTAP+4                           00412
00577  15[illegible]                INQ     37158                            00413
00600  41[illegible]                STQ     MTAP+5                           00414
00601  14[illegible]                ENI     0,3                              00415
00602  21[illegible]                LDQ     HIDENT,3                         00416
00603  034[illegible]               AWJ,EQ  HIDEN                            00417
00604  14[illegible]                ISI     5,3                              00418
00605  01[illegible]                UJP     *-3                              00419
00606  01[illegible]                UJP     *+3                              00420
00607  771[illegible]               SEL     3,0                              00421
00610  01[illegible]                UJP     *-1                              00422
00611  145[illegible]               ENA     MTAPA                            00423
00612  776[illegible]               PAUS    4,0                              00424
00613  01[illegible]                UJP     *-1                              00425
00614  [illegible]                  RTJ     PRINT                            00426
00615  776[illegible]               PAUS    4,0                              00427
00616  01[illegible]                UJP     *-1                              00428
00617  14[illegible]                ENI     1,3                              00429
00620  0777777 00 1 A77777 3        LBTP    RTJ     TAPELRT                  00430
00621  [illegible]                  00      02                               00431
00622  [illegible]                  00      LABEL                            00432
00623  [illegible]                  00      00                               00433
00624  [illegible]                  UJP     *+4                              00434
00625  [illegible]                  IJD     LBTP+3                           00435
00626  771[illegible]               SEL     5,0                              00436
00627  [illegible]                  UJP     *-1                              00437
00630  [illegible]                  UJP,I   LBRRT                            00438
                                                                             00439
00631  03[illegible]                MTAPA   03      MTAP                     00440
00632  [illegible]                  VFD     A12/24,A12/24                    00441
00633  05000000 05 0 00000 0        05                                       00442
                                                                             00443
00634  63214725                     MTAP    BCD     6,TAPE UNIT  2    XXXX  00444
00635  60244531
00636  63[illegible]
00637  60[illegible]
00640  67676767
00641  60[illegible]
00642  23474362                     HIDENT  BCD     7,CPLS                   00445
00643  60[illegible]
00644  60[illegible]
00645  60[illegible]
```

```
00646          60606060
00647          60606060
00650          60606060

00651  14300000 14 0  00000 3  SETR    ENI     0,3
00652  14200012 14 0  00012 2          ENI     10,2
00653  14600677 14 1 P00677 2          ENA     EXLAST
00654  44000177 44 0 P00177 0          SWA     EXPRB
00655  14577777 14 1  77777 1          ENQ,S   77777B
00656  20211164 20 0 P11164 2  LENG    LDA     CARDBUFF+3,2

00657  14100001 14 0  00001 1          ENI     1,1
00660  03300663 03 0 P00663 3          AZJ,LT  *+3
00661  12000006 12 0  00006 0          SHA     6
00662  01000665 01 0 P00665 0          UJP     *+3
00663  12000006 12 0  00006 0          SHA     6
00664  17477700 17 1  77700 0          ANA,S   77700B
00665  10100004 10 0  00004 1          ISI     4,1
00666  01000660 01 0 P00660 0          UJP     *-6

00667  40306275 40 0 P06275 3          STA     DAYS,3
00670  20211161 20 0 P11161 2          LDA     CARDBUFF,2
00671  14100012 14 0  00012 1          ENI     10,1
00672  06106237 06 0 P06237 1          MEQ     EXP,1        MATCH EXPERIMENT NAME
00673  01000200 01 0 P00200 0          UJP     EXPRB+1
00674  20103043 20 0 P03043 1          LDA     ADR,1        ADDRESS OF EXPERIMENT ROUTINE
00675  40306251 40 0 P06251 3          STA     PIRO,3
00676  15200012 15 0  00012 2          INI     10,2
00677  15377777 10 0  77777 3  EXLAST  ISI     **,3
00700  01000656 01 0 P00656 0          UJP     LENG
00701  00703701 00 1 P03701 3          RTJ     PRTC
00702  20000126 20 0 P00126 0          LDA     CARDERF
00703  04600000 04 1  00000 2          ASE     0
00704  01000225 01 0 P00225 0          UJP     EXER
00705  20000275 20 0 P06275 0          LDA     DAYS
00706  40003073 40 0 P03073 0          STA     DTA
00707  40003070 40 0 P03070 0          STA     DAYCNT
00710  01002177 01 0 P02177 0          UJP     PICKT
00711  14602230 14 1 P02230 2  PICKTA  ENA     PICK+1
00712  44002227 44 0 P02227 0          SWA     PICK
00713  14600001 14 1  00001 2          ENA     1
00714  40003061 40 0 P03061 0          STA     PICNT
00715  20006251 20 0 P06251 0          LDA     PIRO
00716  44002041 44 0 P02041 0          SWA     FMA
00717  15477770 15 1  77770 0          INA,S   -7
00720  53600000 53 1  00000 2          TAI     2
00721  14600002 14 1  00002 2          ENA     2
00722  00700562 00 1 P00562 3          RTJ     LBWRT

00723  20200002 20 0  00002 2          LDA     2,2
00724  40003131 40 0 P03131 0          STA     WTA+3
00725  14601764 14 1 P01764 2          ENA     WAF
00726  40200006 40 0  00006 2          STA     6,2
```

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00727  14600000 14 1 C00000 2          ENA     BUF1                    00497
00730  40200005 40 0  00005 2          STA     5,2                     00498
00731  40200004 40 0  00004 2          STA     4,2                     00499
00732  15602100 15 1  02100 2          INA     2100B                   00500
00733  40200003 40 0  00003 2          STA     3,2                     00501
00734  14600001 14 1  00001 2          ENA     1                       00502
00735  40001765 40 0 P01765 0          STA     WAF+1                   00503
                                                                       00504
00736  20006276 20 0 P06276 0          LDA     DAYS+1                  00505
00737  21003070 21 0 P03070 0          LDQ     DAYCNT                  00506
00740  03400743 03 1 P00743 0          AUJ,EQ  *+3                     00507
00741  14600001 14 1  00001 2          ENA     1                       00508
00742  01001021 01 0 P01021 0          UJP     READD-2                 00509
00743  40003074 40 0 P03074 0          STA     UTC                     00510
00744  14600003 14 1  00003 2          ENA     3                       00511
00745  40003061 40 0 P03061 0          STA     PICNT                   00512
                                                                       00513
00746  20006252 20 0 P06252 0          LDA     PIRO+1                  00514
00747  44002045 44 0 P02045 0          SWA     FMR                     00515
00750  15477770 15 1  77770 0          INA,S   -7                      00516
00751  53600000 53 1  00000 2          TAI     2                       00517
00752  14600003 14 1  00003 2          ENA     3                       00518
00753  00700562 00 1 P00562 3          RTJ     LBWRT                   00519
00754  20020002 20 0  00002 2          LDA     2,2                     00520
00755  40003225 40 0 P03225 0          STA     WTB+3                   00521
00756  14001756 14 1 P01756 2          ENA     WBF                     00522
00757  40200006 40 0  00006 2          STA     6,2                     00523
00760  14004200 14 1 C04200 2          ENA     BUF2                    00524
00761  40200005 40 0  00005 2          STA     5,2                     00525
00762  40200004 40 0  00004 2          STA     4,2                     00526
00763  15602100 15 1  02100 2          INA     2100B                   00527
00764  40200003 40 0  00003 2          STA     3,2                     00528
00765  14600001 14 1  00001 2          ENA     1                       00529
00766  40001767 40 0 P01767 0          STA     WBF+1                   00530
                                                                       00531
00767  20006277 20 0 P06277 0          LDA     DAYS+2                  00532
00770  21003070 21 0 P03070 0          LDQ     DAYCNT                  00533
00771  03400774 03 1 P00774 0          AUJ,EQ  *+3                     00534
00772  14600002 14 1  00002 2          ENA     2                       00535
00773  01001021 01 0 P01021 0          UJP     READD-2                 00536
00774  40003075 40 0 P03075 0          STA     UTC                     00537
00775  14600007 14 1  00007 2          ENA     7                       00538
00776  40003061 40 0 P03061 0          STA     PICNT                   00539
                                                                       00540
00777  20006253 20 0 P06253 0          LDA     PIRO+2                  00541
01000  44002051 44 0 P02051 0          SWA     FMC                     00542
01001  15477770 15 1  77770 0          INA,S   -7                      00543
01002  53600000 53 1  00000 2          TAI     2                       00544
01003  14600004 14 1  00004 2          ENA     4                       00545
01004  00700562 00 1 P00562 3          RTJ     LBWRT                   00546
01005  20020002 20 0  00002 2          LDA     2,2                     00547
01006  40003321 40 0 P03321 0          STA     WTC+3                   00548
01007  14001770 14 1 P01770 2          ENA     WBF                     00549
01010  40200006 40 0  00006 2          STA     6,2                     00550
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01011  14610400 14 1 C10400 2          ENA     BUF3
01012  40200005 40 0  00005 2          STA     5,2
01013  40200004 40 0  00004 2          STA     4,2
01014  15602100 15 1  02100 2          INA     2100H
01015  40200003 40 0  00003 2          STA     3,2
01016  14600001 14 1  00001 2          ENA     1
01017  40001771 40 0 P01771 0          STA     WCF+1

01020  14600003 14 1  00003 2          ENA     3
01021  40003062 40 0 P03062 0          STA     SIND
01022  14100011 14 0  00011 1          ENI     9,1


01023  00777777 00 1 X77777 3  PEADD   RTJ     SEEK821
01024  00003063 00 0 P03063 0                  DDIR
01025  01001023 01 0 P01023 0          UJP     *-2
01026  77220002 77 0  20002 2          EXS     2,2
01027  01001026 01 0 P01026 0          UJP     *-1
01030  77220004 77 0  20004 2          EXS      4,2
01031  01001066 01 0 P01066 0          UJP      SER
01032  00777777 00 1 X77777 3          RTJ      RD821
01033  00006321 00 0 P06321 0                   DIRECT
01034  00000207 00 0  00207 0                   135
01035  01001023 01 0 P01023 0          UJP     READD
01036  20077777 20 0 X77777 0          LDA      DSKSTAT
01037  14700002 14 1  00002 3          ENQ     2
01040  03401036 03 1 P01036 0          AQJ,EQ  *-2
01041  17600004 17 1  00004 2          ANA      4
01042  03001107 03 0 P01107 0          AZJ,EQ  DAYCHECK

01043  14601050 14 1 P01050 2          ENA      DRRA
01044  77600400 77 1  00400 2          PAUS    400B
01045  01001044 01 0 P01044 0          UJP     *-1
01046  00700614 00 1 X00614 3          RTJ     PRINT
01047  00001023 00 0 P01023 0          HLT     READD
01050  03001055 03 0 P01055 0  DRRA    03      DRR
01051          00400040                VFD     A12/32,A12/32
01052  02001036 02 0 X01036 0          02      DSKSTAT
01053          00040034                VFD     A12/4,A12/28
01054  05000000 05 0  00000 0          05
01055          60243151        DRR     BCD     8, DIRECTORY READ ERROR -     (GO)
01056          25236346
01057          51706051
01060          25212460
01061          25515146
01062          51604060
01063          60606060
01064          74274634
01065          17770000        DIRR    OCT     17770000

                                                CHECK ADDRESS ERROR

01066  144 1777 14 1  01777 0  SER     ENA,S   1777B
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01067  12000014 12 0  00014 0          SHA     12                                  00598
01070  40001065 40 0 P01065 0          STA     DTRR                                00599
01071  02501023 02 1 P01023 1          IJD     RLADD,1                             00600
01072  14601100 14 1 P01100 2          ENA     SERRA                               00601
01073  77600400 77 1  00400 2          PAUS    400B                                00602
01074  01001073 01 0 P01073 0          UJP     *-1                                 00603
01075  00701046 00 1 X01046 3          RTJ     PRINT                               00604
01076  20003070 20 0 P03070 0          LDA     DAYCNT                              00605
01077  00001141 00 0 P01141 0          HLT     TAPECON                             00606
01100  03001103 03 0 P01103 0  SERRA   03      SERR                                00607
01101          00200020                VFD     A12/16,A12/16                       00608
01102  05000000 05 0  00000 0          05                                          00609
01103          62252542        SERR    BCD     4,SEEK ERROR HALT                   00610
01104          60255151
01105          46516030
01106          21436360
                                                                                   00611
                                                                                   00612
```

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01107  14600002 14 1  00002 2  DAYCHECK ENA     2        ...TO INITALIZE DATA FOR DAY ...
01110  40001516 40 0 P01516 0           STA     PFLG
01111  14100207 14 0  00207 1           ENI     135,1
01112  20003070 20 0 P03070 0           LDA     DAYCNT
01113  14577777 14 1  77777 1           ENQ,S   77777B
01114  06306321 06 0 P06321 3           MEQ     DIRECT,3
01115  01001141 01 0 P01141 0           UJP     TAPECON
01116  15100001 15 0  00001 1           INI     1,1
01117  20106321 20 0 P06321 1           LDA     DIRECT,1
01120  21003060 21 0 P03060 0           LDQ     ALNUM
01121  03401124 03 1 P01124 0           AQJ,EQ  *+3
01122  15177776 15 0  77776 1           INI     -1,1
01123  01001112 01 0 P01112 0           UJP     DAYCHECK+3
01124  15100001 15 0  00001 1           INI     1,1
01125  20106321 20 0 P06321 1           LDA     DIRECT,1
01126  40003064 40 0 P03064 0           STA     DATA
01127  17577777 17 1  77777 2           ANA     77778
01130  03001133 03 0 P01133 0           AZJ,EQ  *+3
01131  15177775 15 0  77775 1           INI     -2,1
01132  01001112 01 0 P01112 0           UJP     DAYCHECK+3
01133  14601517 14 1 P01517 2           ENA     DISKRD
01134  44001317 44 0 P01317 0           SWA     FMI
01135  20003064 20 0 P03064 0           LDA     DATA
01136  15473717 15 1  73717 0           INA,S   -2096
01137  40003064 40 0 P03064 0           STA     DATA
01140  01001517 01 0 P01517 0           UJP     DISKRD

01141  40001162 40 0 P01162 0  TAPECON  STA     TCON+6
01142  14601151 14 1 P01151 2           ENA     TCONA
01143  77600400 77 1  00400 2           PAUS    400B
01144  01001143 01 0 P01143 0           UJP     *-1
01145  00701075 00 1 X01075 3           RTJ     PRINT
01146  77504000 77 1  04000 2           PAUS    4000B
01147  01001146 01 0 P01146 0           UJP     *-1
01150  00001167 00 0 P01167 0           HLT     TAPEROY

01151  03001154 03 0 P01154 0  TCONA    03      TCON
01152          05000050                VFD     A12/40,A12/40
01153  05000000 05 0  00000 0           05
01154          44465445        TCON    BCD     10,MOUNT TAPE 1 FOR DAY -      , .. PUSH GO
01155          63606321
01156          47256001
01157          60264651
01160          60242170
01161          60406060
01162          60606060
01163          73603333
01164          60476462
01165          30602746

01166          10777777        TSEL    OCT     10777777
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01167  00202060 00 0 P02050 2  TAPERDY  SJ2     TERMSET
01170  00701566 00 1 X00566 3           RTJ     TAPESEL
01171  02000001 02 0  00001 0           02      01
01172  00001166 00 0 P01166 0           00      TSEL
01173  01001142 01 0 P01142 0           UJP     TAPECON+1
01174  77220002 77 0  20002 2           EXS     2,2
01175  01001174 01 0 P01174 0           UJP     *-1

01176  77120002 77 0  20002 1           SEL     2,2
01177  01001176 01 0 P01176 0           UJP     *-1
01200  00777777 00 1 X77777 3  TREAD    RTJ     TAPERD
01201  02000001 02 0  00001 0           02      01
01202  00005561 00 0 P05561 0           00      INPUT
01203  00000207 00 0  00207 0           00      135
01204  01001200 01 0 P01200 0           UJP     *-4
01205  77220002 77 0  20002 2           EXS     2,2
01206  01001205 01 0 P01205 0           UJP     *-1
01207  77220000 77 0  22000 2           EXS     20000,2
01210  01001264 01 0 P01264 0           UJP     PARI
01211  20005573 20 0 P05573 0           LDA     INPUT+10
01212  21003070 21 0 P03070 0           LDQ     DAYCNT
01213  03501245 03 1 P01245 1           AQJ,NE  WTAPE
01214  14100005 14 0  00005 1           ENI     5,1
01215  20005566 20 0 P00566 0           LDA     INPUT+5          APOLLO FLIGHT NUMBER IN BCD.
01216  12000014 12 0  00014 0           SHA     12
01217  17470000 17 1  70000 0           ANA,S   700006
01220  14570000 14 1  70000 1           ENQ,S   700006
01221  06100077 06 0 P00077 1           MEQ     ALTAB,1
01222  01001223 01 0 P01223 0           UJP     *+1
01223  20101774 20 0 P01774 1           LDA     ALNDEC,1
01224  21003060 21 0 P03060 0           LDQ     ALNUM
01225  03501245 03 1 P01245 1           AQJ,NE  WTAPE
01226  14601320 14 1 P01320 2           ENA     TAPERED
01227  44001317 44 0 P01317 0           SWA     FMT
01230  20003072 20 0 P03072 0           LDA     PARIC
01231  04600000 04 1  00000 2           ASE     0
01232  01001242 01 0 P01242 0           UJP     *+8
01233  00701200 00 1 X01200 3           RTJ     TAPERD
01234  02000001 02 0  00001 0           02      01
01235  00006775 00 0 P06775 0           00      INPUT+140
01236  00000207 00 0  00207 0           00      135
01237  01001233 01 0 P01233 0           UJP     *-4
01240  77220002 77 0  20002 2           EXS     2,2
01241  01001240 01 0 P01240 0           UJP     *-1
01242  77120001 77 0  20001 1           SEL     1,2
01243  01001242 01 0 P01242 0           UJP     *-1
01244  01001320 01 0 P01320 0           UJP     TAPERED

01245  14601250 14 1 P01250 2  WTAPE    ENA     WTAPEMA
01246  00701145 00 1 X01145 3           RTJ     PRINT
01247  01001143 01 0 P01143 0           UJP     TAPECON+2
01250  03001253 03 0 P01253 0  WTAPEMA  03      WTAPEM
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01251          00440044                  VFD     A12/36,A12/36                                  00713
01252  05000000 05 0  00000 0            05                                                     00714
01253          60665146          WTAPEM  BCD     9, WRONG TAPE,PLEASE CORRECT,PUSH GO           00715
01254          45276063
01255          21472573
01256          47432521
01257          62256023
01260          46515125
01261          23637347
01262          64623060
01263          27466060
01264  20003072 20 0 P03072 0    PARI    LDA     PARIC                                          00716
01265  15000001 15 1  00001 2            INA     1                                              00717
01266  40003072 40 0 P03072 0            STA     PARIC                                          00718
01267  04000002 04 1  00002 2            ASE     2                                              00719
01270  01001200 01 0 P01200 0            UJP     TREAD                                          00720
01271  14601300 14 1 P01300 2            ENA     PAREA                                          00721
01272  77600400 77 1  00400 2            PAUS    400B                                           00722
01273  01001272 01 0 P01272 0            UJP     *-1                                            00723
01274  00701246 00 1 X01246 3            RTJ     PRINT                                          00724
01275  77600400 77 1  00400 2            PAUS    400B                                           00725
01276  01001275 01 0 P01275 0            UJP     *-1                                            00726
01277  00001167 00 0 P01167 0            HLT     TAPERDY                                        00727
                                                                                                00728
01300  03001303 03 0 P01303 0    PAREA   03      PARE                                           00729
01301          00600060                  VFD     A12/48,A12/48                                  00730
01302  05000000 05 0  00000 0            05                                                     00731
                                                                                                00732
01303          22212460          PARE    BCD     12,BAD HEADER RECORDS.ON UNIT 1, IF CAN FIX-PUSH GO  00733
01304          30252124
01305          25516051
01306          25234651
01307          24626046
01310          45606445
01311          31636001
01312          73603126
01313          60232145
01314          60263167
01315          40476462
01316          30602746
                                                                                                00734
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01317  01077777 01 0  77777 0  FMT      UJP     **
                                                        READ ONE RECORD FROM INPUT TAPE
01320  20003057 20 0 P03057 0  TAPERED  LDA     DFLG
01321  03001337 03 0 P01337 0           AZJ,EQ  TAPA
01322  14600000 14 1  00000 2           ENA     0
01323  40003057 40 0 P03057 0           STA     DFLG
01324  77220002 77 0  20002 2           EXS     2,2
01325  01001324 01 0 P01324 0           UJP     *-1
01326  77220000 77 0  22000 2           EXS     2000B,2
01327  00701354 00 1 P01354 3           RTJ     PARKA
01330  00701233 00 1 X01233 3           RTJ     TAPERD
01331  02000001 02 0  00001 0           02      01
01332  00006561 00 0 P06561 0           00      INPUT
01333  00001130 00 0  01130 0           00      600
01334  01001330 01 0 P01330 0           UJP     *-4          REJECT
01335  14607761 14 1 P07761 2           ENA     INPUT2
01336  01001652 01 0 P01652 0           UJP     RDCON

01337  14600001 14 1  00001 2  TAPA     ENA     1
01340  40003057 40 0 P03057 0           STA     DFLG
01341  77220002 77 0  20002 2           EXS     2,2
01342  01001341 01 0 P01341 0           UJP     *-1
01343  77220000 77 0  22000 2           EXS     2000B,2
01344  00701402 00 1 P01402 3           RTJ     PARKB
01345  00701330 00 1 X01330 3           RTJ     TAPERD
01346  02000001 02 0  00001 0           02      01
01347  00007761 00 0 P07761 0           00      INPUT2
01350  00001130 00 0  01130 0           00      600
01351  01001345 01 0 P01345 0           UJP     *-4          REJECT
01352  14606561 14 1 P06561 2           ENA     INPUT
01353  01001652 01 0 P01652 0           UJP     RDCON

01354  01077777 01 0  77777 0  PARKA    UJP     **
01355  14100011 14 0  00011 1           ENI     9,1
01356  14600001 14 1  00001 2           ENA     1
01357  34001744 34 0 P01744 0           RAD     RETRY
01360  00701170 00 1 X01170 3           RTJ     TAPESEL
01361  02000001 02 0  00001 0           02      01
01362  00001401 00 0 P01401 0           0       TBSL
01363  01001360 01 0 P01360 0           UJP     *-3
01364  00701345 00 1 X01345 3           RTJ     TAPERD
01365  02000001 02 0  00001 0           02      01
01366  00007761 00 0 P07761 0           00      INPUT2
01367  00001130 00 0  01130 0           00      600
01370  01001364 01 0 P01364 0           UJP     *-4
01371  77220002 77 0  20002 2           EXS     2,2
01372  01001371 01 0 P01371 0           UJP     *-1
01373  77220000 77 0  22000 2           EXS     2000B,2
01374  01001376 01 0 P01376 0           UJP     *+2
01375  01401354 01 1 P01354 0           UJP,I   PARKA
01376  02001356 02 1 P01356 1           IJD     PARKA+2,1
01377  00701511 00 1 P01511 3           RTJ     PARK
01400  01401354 01 1 P01354 0           UJP,I   PARKA
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01401          12777777          TBSL     OCT      12777777

01402  01077777 01 0  77777 0  PARKB     UJP      **
01403  14100011 14 0  00011 1            ENI      9,1
01404  14600001 14 1  00001 2            ENA      1
01405  34001744 34 0 P01744 0            RAD      RETRY
01406  00701360 00 1 X01360 3            RTJ      TAPESEL
01407  02000001 02 0  00001 0            02       01
01410  00001401 00 0 P01401 0            00       TBSL
01411  01001406 01 0 P01406 0            UJP      *-3
01412  00701364 00 1 X01364 3            RTJ      TAPERD
01413  02000001 02 0  00001 0            02       01
01414  00006561 00 0 P06561 0            00       INPUT
01415  00001130 00 0  01130 0            00       600
01416  01001412 01 0 P01412 0            UJP      *-4
01417  77220002 77 0  20002 2            EXS      2,2
01420  01001417 01 0 P01417 0            UJP      *-1
01421  77222000 77 0  22000 2            EXS      2000B,2
01422  01001424 01 0 P01424 0            UJP      *+2
01423  01401402 01 1 P01402 0            UJP,I    PARKB
01424  02501404 02 1 P01404 1            IJD      PARKB+2,1
01425  00701511 00 1 P01511 3            RTJ      PARK
01426  01401402 01 1 P01402 0            UJP,I    PARKB

01427  01077777 01 0  77777 0  PARKC     UJP      **
01430  14100011 14 0  00011 1            ENI      9,1
01431  14600001 14 1  00001 2            ENA      1
01432  34001744 34 0 P01744 0            RAD      RETRY
01433  00701023 00 1 X01023 3            RTJ      SEEK821
01434  00003064 00 0 P03064 0                     DATA
01435  01001433 01 0 P01433 0            UJP      *-2
01436  77220002 77 0  20002 2            EXS      4,2
01437  01001436 01 0 P01436 0            UJP      *-1
01440  77220004 77 0  20004 2            EXS      4,2
01441  01001455 01 0 P01455 0            UJP      SRBX
01442  00701032 00 1 X01032 3            RTJ      RDR21
01443  00007751 00 0 P07751 0                     INPUT2
01444  00001200 00 0  01200 0                     640
01445  01001431 01 0 P01431 0            UJP      PARKC+2
01446  20001052 20 0 X01052 0            LDA      DSKSTAT
01447  14700002 14 1  00002 3            ENQ      2
01450  03401446 03 1 P01446 0            AQJ,EQ   *-2
01451  17600004 17 1  00004 2            ANA      4
01452  04600000 04 1  00000 2            ASE      0
01453  01001455 01 0 P01455 0            UJP      *+2
01454  01401427 01 1 P01427 0            UJP,I    PARKC
01455  02501431 02 1 P01431 1  SRBX      IJD      PARKC+2,1
01456  00701511 00 1 P01511 3            RTJ      PARK
01457  01401427 01 1 P01427 0            UJP,I    PARKC

01460  01077777 01 0  77777 0  PARKD     UJP      **
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01461  14100011 14 0  00011 1          ENI     9,1
01462  14600001 14 1  00001 2          ENA     1
01463  34001744 34 0 P01744 0          RAD     RETRY
01464  00701433 00 1 X01433 3          RTJ     SEEK821
01465  00003064 00 0 P03064 0                  DATA
01466  01001464 01 0 P01464 0          UJP     *-2
01467  77220002 77 0  20002 2          EXS     4,2
01470  01001467 01 0 P01467 0          UJP     *-1
01471  77220004 77 0  20004 2          EXS     4,2
01472  01001506 01 0 P01506 0          UJP     SRAX
01473  00701442 00 1 X01442 3          RTJ     RD821
01474  00006551 00 0 P06551 0                  INPUT
01475  00001200 00 0  01200 0                  640
01476  01001462 01 0 P01462 0          UJP     PARKD+2
01477  20001446 20 0 X01446 0          LDA     DSKSTAT
01500  14700002 14 1  00002 3          ENQ     2
01501  03401477 03 1 P01477 0          AQJ,EQ  *-2
01502  17600004 17 1  00004 2          ANA     4
01503  04600000 04 1  00000 2          ASE     0
01504  01001506 01 0 P01506 0          UJP     *+2
01505  01401460 01 1 P01460 0          UJP,I   PARKD
01506  02501462 02 1 P01462 1  SRAX    IJD     PARKD+2,1
01507  00701511 00 1 P01511 3          RTJ     PARK
01510  01401460 01 1 P01460 0          UJP,I   PARKD

01511  14077777 14 0  77777 0  PARK    NOP     **
01512  14600001 14 1  00001 2          ENA     1
01513  40001516 40 0 P01516 0          STA     PFLG
01514  34003072 34 0 P03072 0          RAD     PARIC
01515  01401511 01 1 P01511 0          UJP,I   PARK
01516          00000000        PFLG    OCT     0


01517  20003057 20 0 P03057 0  DISKRD  LDA     DFLG
01520  03001566 03 0 P01566 0          AZJ,EQ  DISKA
01521  14600000 14 1  00000 2          ENA     0
01522  40003057 40 0 P03057 0          STA     DFLG
01523  20001477 20 0 X01477 0          LDA     DSKSTAT
01524  14700002 14 1  00002 3          ENQ     2
01525  03401523 03 1 P01523 0          AQJ,EQ  *-2
01526  17600004 17 1  00004 2          ANA     4
01527  04600000 04 1  00000 2          ASE     0
01530  00701427 00 1 P01427 3          RTJ     PARKC
01531  00701633 00 1 P01633 3          RTJ     DISA
01532  00701464 00 1 X01464 3  DISKC   RTJ     SEEK821
01533  00003064 00 0 P03064 0                  DATA
01534  01001532 01 0 P01532 0          UJP     *-2
01535  77220002 77 0  20002 2          EXS     4,2
01536  01001535 01 0 P01535 0          UJP     *-1
01537  77220004 77 0  20004 2          EXS     4,2
01540  00701547 00 1 P01547 3          RTJ     SRA

01541  00701473 00 1 X01473 3          RTJ     RD821
```

```
01542  00006561 00 0 P06561 0                    INPUT
                                                          READ ONE RECORD FOR OD DISK FILE
01543  00001200 00 0  01200 0                    640
01544  01001532 01 0 P01532 0          UJP       DISKC
01545  14607761 14 1 P07761 2          ENA       INPUT2
01546  01001652 01 0 P01652 0          UJP       RDCON

01547  14077777 14 0  77777 0  SRA     NOP       **
01550  14100011 14 0  00011 1          ENI       9,1
01551  00701532 00 1 X01532 3          RTJ       SEEK821
01552  00003064 00 0 P03064 0                    DATA
01553  01001551 01 0 P01551 0          UJP       *-2
01554  77220002 77 0  20002 2          EXS       2,2
01555  01001554 01 0 P01554 0          UJP       *-1
01556  77220004 77 0  20004 2          EXS       4,2
01557  01001561 01 0 P01561 0          UJP       *+2
01560  01401547 01 1 P01547 0          UJP,I     SRA
01561  02501551 02 1 P01551 1          IJD       SRA-2,1
01562  00701633 00 1 P01633 3          RTJ       DISA
01563  14600001 14 1  00001 2          ENA       1
01564  34001747 34 0 P01747 0          RAD       SEEK
01565  01001532 01 0 P01532 0          UJP       DISKC

01566  14600001 14 1  00001 2  DISKA   ENA       1
01567  40003057 40 0 P03057 0          STA       DFLG
01570  20001523 20 0 X01523 0          LDA       DSKSTAT
01571  14700002 14 1  00002 3          ENQ       2
01572  03401570 03 1 P01570 0          AQJ,EQ    *-2
01573  17600004 17 1  00004 2          ANA       4
01574  04600000 04 1  00000 2          ASE       0
01575  00701460 00 1 P01460 3          RTJ       PARKD
01576  00701633 00 1 P01633 3          RTJ       DISA
01577  00701551 00 1 X01551 3  DISKB   RTJ       SEEK821
01600  00003064 00 0 P03064 0                    DATA
01601  01001577 01 0 P01577 0          UJP       *-2
01602  77220002 77 0  20002 2          EXS       2,2
01603  01001602 01 0 P01602 0          UJP       *-1
01604  77220004 77 0  20004 2          EXS       4,2
01605  00701614 00 1 P01614 3          RTJ       SRB
01606  00701541 00 1 X01541 3          RTJ       RD821
01607  00007761 00 0 P07761 0                    INPUT2
01610  00001200 00 0  01200 0                    640
01611  01001577 01 0 P01577 0          UJP       DISKB
01612  14606561 14 1 P06561 2          ENA       INPUT
01613  01001652 01 0 P01652 0          UJP       RDCON

01614  14077777 14 0  77777 0  SRB     NOP       **
01615  14100011 14 0  00011 1          ENI       9,1
01616  00701577 00 1 X01577 3          RTJ       SEEK821
01617  00003064 00 0 P03064 0                    DATA
01620  01001616 01 0 P01616 0          UJP       *-2
01621  77220002 77 0  20002 2          EXS       2,2
01622  01001621 01 0 P01621 0          UJP       *-1
```

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01623  77220004 77 0  20004 2          EXS     4,2                    00952
01624  01001626 01 0 P01626 0          UJP     *+2                    00953
01625  01401614 01 1 P01614 0          UJP,I   SRB                    00954
01626  02501616 02 1 P01616 1          IJD     SRB+2,1                00955
01627  00701633 00 1 P01633 3          RTJ     DISA                   00956
                                                                       00957
01630  14600001 14 1  00001 2          ENA     1                      00958
01631  34001747 34 0 P01747 0          RAD     SEEK                   00959
01632  01001577 01 0 P01577 0          UJP     DISKB                  00960
                                                                       00961
01633  14077777 14 0  77777 0 DISA     NOP     **                     00962
01634  20003064 20 0 P03064 0          LDA     DATA                   00963
01635  15600004 15 1  00004 2          INA     4                      00964
01636  40003064 40 0 P03064 0          STA     DATA                   00965
01637  17400077 17 1  00077 0          ANA,S   77B                    00966
01640  04500024 04 1  00024 2          ASE     24B                    00967
01641  01401633 01 1 P01633 0          UJP,I   DISA                   00968
01642  20003064 20 0 P03064 0          LDA     DATA                   00969
01643  15600054 15 1  00054 2          INA     54B                    00970
01644  40003064 40 0 P03064 0          STA     DATA                   00971
01645  17440000 17 1  04000 0          ANA,S   4000B                  00972
01646  03001651 03 0 P01651 0          AZJ,EQ  *+3                    00973
01647  14604000 14 1  04000 2          ENA     4000B                  00974
01650  34003064 34 0 P03064 0          RAD     DATA                   00975
01651  01401633 01 1 P01633 0          UJP,I   DISA                   00976
```

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01652 21001516 21 0 P01516 0  RDCON   LDQ     PFLG                                    00978
01653 04700000 04 1  00000 3          QSE     0                                       00979
01654 01001722 01 0 P01722 0          UJP     RDFLG                                   00980
01655 44003065 44 0 P03065 0          SWA     INPUTA                                  00981
01656 15500004 15 1  00004 2          INA     4                                       00982
01657 40003066 40 0 P03066 0          STA     TIMADR                                  00983
01660 15600132 15 1  00132 2          INA     90                                      00984
01661 40003067 40 0 P03067 0          STA     DATADR                                  00985
01662 20413065 20 1 P03065 0          LDA,I   INPUTA                                  00986
01663 21001130 21 0 P01130 0          LDQ     END                                     00987
01664 03402104 03 1 P02104 0          AQJ,EQ  DEND                                    00988
01665 21003070 21 0 P03070 0          LDQ     DAYCNT                                  00989
01666 03401671 03 1 P01671 0          AQJ,EQ  *+3                                     00990
01667 21003071 21 0 P03071 0          LDQ     DAYFOL                                  00991
01670 03501717 03 1 P01717 1          AQJ,NE  REPT                                    00992
01671 54203065 54 0 P03065 2          LDI     INPUTA,2                                00993
01672 25203002 25 0  03002 2          LDAQ    2,2                                     00994
01673 40001760 40 0 P01760 0          STA     INREC     INPUT RECORD NUMBER           00995
01674 03301717 03 0 P01717 3          AZJ,LT  REPT                                    00996
01675 14600000 14 1  00000 2          ENA     0                                       00997
01676 13000014 13 0  00014 0          SHAQ    12                                      00998
01677 40001757 40 0 P01757 0          STA     AFLN      APOLLO FLIGHT NUMBER          00999
01700 12400010 12 1  00010 0          SHQ     8                                       01000
01701 41001755 41 0 P01755 0          STQ     SITE      SITE ID LEFT JUSTIFIED        01001
01702 21003060 21 0 P03060 0          LDQ     ALNUM                                   01002
01703 03501717 03 1 P01717 1          AQJ,NE  REPT                                    01003
01704 20200001 20 0  00001 2          LDA     1,2                                     01004
01705 12777771 12 0  77771 0          SHA     -7                                      01005
01706 04600007 04 1  00007 2          ASE     7         ** THIS CHECK IS GOOD THUR 1980 ONLY.  01006
01707 01001714 01 0 P01714 0          UJP     LOST                                    01007
01710 14400000 14 0  00000 1          ENI     0,1                                     01008
01711 14600001 14 1  00001 2          ENA     1                                       01009
01712 34001754 34 0 P01754 0          RAD     RECS                                    01010
01713 01002005 01 0 P02005 0          UJP     FCYL+4                                  01011
                                                                                      01012
01714 14600001 14 1  00001 2  LOST    ENA     1                                       01013
01715 34003072 34 0 P03072 0          RAD     PANIC                                   01014
01716 01401317 01 1 P01317 0          UJP,I   FMT                                     01015
                                                                                      01016
01717 14600001 14 1  00001 2  REPT    ENA     1                                       01017
01720 34001750 34 0 P01750 0          RAD     REPTS                                   01018
01721 01401317 01 1 P01317 0          UJP,I   FMT                                     01019
                                                                                      01020
                                                                                      01021
01722 04700001 04 1  00001 3  RDFLG   QSE     1                                       01022
01723 01001727 01 0 P01727 0          UJP     *+4                                     01023
01724 14700000 14 1  00000 3          ENQ     0                                       01024
01725 41001516 41 0 P01516 0          STQ     PFLG                                    01025
01726 01401317 01 1 P01317 0          UJP,I   FMT                                     01026
01727 04700002 04 1  00002 3          QSE     2         INITIAL READ FOR DAY          01027
01730 01001734 01 0 P01734 0          UJP     *+4                                     01028
01731 14700003 14 1  00003 3          ENQ     3                                       01029
01732 41001516 41 0 P01516 0          STQ     PFLG                                    01030
                                                                                      01031
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01733  01401317 01 1 P01317 0          UJP,1    FNT
01734  14700000 14 1  00000 3          ENQ      0
01735  41001516 41 0 P01516 0          STQ      PFLG
01736  44003065 44 0 P03065 0          SWA      INPUTA
01737  15600004 15 1  00004 2          INA      4
01740  44003066 44 0 P03066 0          SWA      TIMADR
01741  00703750 00 1 P03750 3          RTJ      PRTQ
01742  20003066 20 0 P03066 0          LDA      TIMADR
01743  01001660 01 0 P01660 0          UJP      RDCON+6

01744          00000000        RETRY   OCT      0
01745          00000000        TIMLAST OCT      0
01746          00000000                OCT      0
01747          00000000        SEEK    OCT      0
01750          00000000        REPTS   OCT      0
01751          00000000        RECA    OCT      0
01752          00000000        RECB    OCT      0
01753          00000000        RECC    OCT      0
01754          00000000        RECS    OCT      0
01755          00000001        SITE    OCT      1
01756          40000000        OR      OCT      40000000
01757          00000000        AFLN    OCT      0
01760          00000000        INREC   OCT      0
01761          00000000        BER     OCT      0
01762          00000000        BERX    OCT      0
01763          00000000        FRAME   OCT      0

01764          00000000        WAF     OCT      0        WRITE A FLAG  0-NONE,1-BUF1,2-BUF1+2100B
01765          00000000                OCT      0        EXPERIMENT 1 - NUMBER DAYS NEEDED
01766          00000000        WBF     OCT      0        WRITE B FLAG  0-NONE,1-BUF2,2-BUF2+2100B
01767          00000000                OCT      0        EXPERIMENT 2 - NUMBER DAYS NEEDED
01770          00000000        WCF     OCT      0        WRITE C FLAG  0-NONE,1-BUF3,2-BUF3+2100B
01771          00000000                OCT      0        EXPERIMENT 3 - NUMBER DAYS NEEDED
01772          00000000        SWSTEMP OCT      0

01773          00000013                DEC      11
01774          00000014        ALNDEC  DEC      12
01775          00000016                DEC      14
01776          00000017                DEC      15
01777          00000020                DEC      16
02000          00000021                DEC      17
```

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02001  14600002 14 1  00002 2  FCYL    ENA     2                                01082
02002  34003066 34 0 P03066 0          RAD     TIMADR                           01083
02003  14600013 14 1  00013 2          ENA     11                               01084
02004  34003067 34 0 P03067 0          RAD     DATADR                           01085
02005  21403066 21 1 P03066 0          LDQ,I   TIMADR                           01086
02006  14600000 14 1  00000 2          ENA     0                                01087
02007  13000003 13 0  00003 0          SHAQ    3                                01088
02010  15600005 05 1  00005 2          ASG     5                                01089
02011  01012055 01 0 P02055 0          UJP     FCXM                             01090
02012  14600000 14 1  00000 2          ENA     0                                01091
02013  13000003 13 0  00003 0          SHAQ    3                                01092
02014  15600005 05 1  00005 2          ASG     5                                01093
02015  01012055 01 0 P02055 0          UJP     FCXM                             01094
02016  54303067 54 0 P03067 3          LDI     DATADR,3                         01095
02017  20300011 20 0  00011 3          LDA     9,3                              01096
02020  12000011 12 0  00011 0          SHA     9                                01097
02021  17400177 17 1  00177 0          ANA,S   177B                             01098
02022  40001763 40 0 P01763 0          STA     FRAME                            01099
02023  25300010 25 0  00010 3          LDAQ    8,3                              01100
02024  00702201 00 1 P02201 3          RTJ     VERIFY                           01101
02025  40001761 40 0 P01761 0          STA     BER                              01102
02026  21001755 21 0 P01755 0          LDQ     SITE                             01103
02027  13000004 13 0  00004 0          SHAQ    4                                01104
02030  21001761 21 0 P01761 0          LDQ     BER                              01105
02031  12400022 12 1  00022 0          SHQ     18                               01106
02032  13000006 13 0  00006 0          SHAQ    6                                01107
02033  21001756 21 0 P01756 0          LDQ     DR                               01108
02034  13000002 13 0  00002 0          SHAQ    2                                01109
02035  13000014 13 0  00014 0          SHAQ    12                               01110
02036  40001762 40 0 P01762 0          STA     BERX                             01111
02037  25403066 25 1 P03066 0          LDAQ,I  TIMADR                           01112
02040  45001745 45 0 P01745 0          STAQ    TIMLAST                          01113
02041  00703055 00 1 P03055 3  FMA     RTJ     RLS                              01114
02042  21001764 21 0 P01764 0          LDQ     WAF                              01115
02043  04700000 04 1  00000 3          QSE     0                                01116
02044  00703110 00 1 P03110 3          RTJ     WRTA                             01117
                                                                                01118
02045  00703055 00 1 P03055 3  FMB     RTJ     RLS                              01119
02046  21001766 21 0 P01766 0          LDQ     WBF                              01120
02047  04700000 04 1  00000 3          QSE     0                                01121
02050  00703204 00 1 P03204 3          RTJ     WRTB                             01122
                                                                                01123
02051  00703055 00 1 P03055 3  FMC     RTJ     RLS                              01124
02052  21001770 21 0 P01770 0          LDQ     WCF                              01125
02053  04700000 04 1  00000 3          QSE     0                                01126
02054  00703300 00 1 P03300 3          RTJ     WRTC                             01127
                                                                                01128
02055  10100054 10 0  00054 1  FCXM    ISI     44,1                             01129
02056  01002001 01 0 P02001 0          UJP     FCYL    NEXT FRAME               01130
                                                                                01131
02057  01401317 01 1 P01317 0          UJP,I   FMT     NEW INPUT RECORD         01132
                                                                                01133
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02060  14700001 14 1  00001 3  TERMSET  ENQ     1
02061  20001765 20 0 P01765 0           LDA     WAF+1
02062  04600000 04 1  00000 2           ASE     0
02063  41001765 41 0 P01765 0           STQ     WAF+1
02064  20001767 20 0 P01767 0           LDA     WBF+1
02065  04600000 04 1  00000 2           ASE     0
02066  41001767 41 0 P01767 0           STQ     WBF+1
02067  20001771 20 0 P01771 0           LDA     WCF+1
02070  04600000 04 1  00000 2           ASE     0
02071  41001771 41 0 P01771 0           STQ     WCF+1
02072  01002125 01 0 P02125 0           UJP     TER
02073  03002076 03 0 P02076 0  MDAYA    03      MDAY
02074          00300030                VFD     A12/24,A12/24
02075  05000000 05 0  00000 0           05

02076          60254524        MDAY    BCD     6, END OF DAY      ...
02077          60462560
02100          24217060
02101          60606060
02102          60333333
02103          60606060

02104  00703546 00 1 P03546 3  DEND    RTJ     PRTA      PRINT STATUS FOR ONE DAY OF DATA
02105  00704016 00 1 P04016 3           RTJ     PRTT

02106  20001317 20 0 P01317 0           LDA     FMT          CHECK FOR INPUT ON TAPE
02107  17677777 17 1  77777 2           ANA     77777B
02110  14701320 14 1 P01320 3           ENQ     TAPERED
02111  03502116 03 1 P02116 1           AQJ,NE  *+5        INPUT ON DISK

02112  00701406 00 1 X01406 3           RTJ     TAPESEL      REWIND INPUT TAPE
02113  02000001 02 0  00001 0           02      01
02114  00001166 00 0 P01166 0           00      TSEL
02115  01002116 01 0 P02116 0           UJP     *+1

02116  20003070 20 0 P03070 0           LDA     DAYCNT
02117  40002101 40 0 P02101 0           STA     MDAY+3
02120  14602073 14 1 P02073 2           ENA     MDAYA
02121  77600400 77 1  00400 2           PAUS    400P
02122  01002121 01 0 P02121 0           UJP     *-1
02123  00701274 00 1 X01274 3           RTJ     PRINT
02124  00202060 00 0 P02060 2           SJ2     TERMSET
02125  20001765 20 0 P01765 0  TER      LDA     WAF+1
02126  05600001 05 1  00001 2           ASG     1
02127  01002133 01 0 P02133 0           UJP     TER1
02130  15477776 15 1  77776 0           INA,S   -1
02131  40001765 40 0 P01765 0           STA     WAF+1
02132  03002561 03 0 P02561 0           AZJ,EQ  TERM1
02133  20001767 20 0 P01767 0  TER1     LDA     WBF+1
02134  05600001 05 1  00001 2           ASG     1
02135  01002141 01 0 P02141 0           UJP     TER2
02136  15477776 15 1  77776 0           INA,S   -1
02137  40001767 40 0 P01767 0           STA     WBF+1
02140  03002632 03 0 P02632 0           AZJ,EQ  TERM2
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02141  20001771 20 0 P01771 0  TER2    LDA     WCF+1                          01184
02142  15600001 15 1  00001 2          ASG     1                              01185
02143  01002147 01 0 P02147 0          UJP     TER3                           01186
02144  15477776 15 1  77776 0          INA,S   -1                             01187
02145  40001771 40 0 P01771 0          STA     WCF+1                          01188
02146  03002701 03 0 P02701 0          AZJ,EQ  TERM3                          01189
                                       INCREASE DAYCNT (BCD) BY ONE           01190
02147  20003070 20 0 P03070 0  TER3    LDA     DAYCNT                         01191
02150  15600001 15 1  00001 2          INA     1                              01192
02151  40003070 40 0 P03070 0          STA     DAYCNT                         01193
02152  17400077 17 1  00077 0          ANA,S   77B                            01194
02153  04600012 04 1  00012 2          ASE     10                             01195
02154  01002177 01 0 P02177 0          UJP     PICKT                          01196
02155  20003070 20 0 P03070 0          LDA     DAYCNT                         01197
02156  15600066 15 1  00066 2          INA     66B                            01198
02157  40003070 40 0 P03070 0          STA     DAYCNT                         01199
02160  17477700 17 1  07700 0          ANA,S   7700B                          01200
02161  04601200 04 1  01200 2          ASE     1400B                          01201
02162  01002177 01 0 P02177 0          UJP     PICKT                          01202
02163  20003070 20 0 P03070 0          LDA     DAYCNT                         01203
02164  15606600 15 1  06600 2          INA     6600B                          01204
02165  40003070 40 0 P03070 0          STA     DAYCNT                         01205
02166  12777763 12 0  77763 0          SMA     -12                            01206
02167  17400077 17 1  00077 0          ANA,S   77B                            01207
02170  04600012 04 1  00012 2          ASE     10                             01208
02171  01002177 01 0 P02177 0          UJP     PICKT                          01209
02172  20003070 20 0 P03070 0          LDA     DAYCNT                         01210
02173  14700066 14 1  00066 3          ENQ     66B                            01211
02174  12400014 12 1  00014 0          SHQ     12                             01212
02175  53040000 53 0  40000 0          ANA                                    01213
02176  40003070 40 0 P03070 0          STA     DAYCNT                         01214
                                                                              01215
02177  20003070 20 0 P03070 0  PICKT   LDA     DAYCNT                         01216
02200  15600001 15 1  00001 2          INA     1                              01217
02201  40003071 40 0 P03071 0          STA     DAYFOL                         01218
02202  17400077 17 1  00077 0          ANA,S   77B                            01219
02203  04600012 04 1  00012 2          ASE     10                             01220
02204  01002227 01 0 P02227 0          UJP     PICK                           01221
02205  20003071 20 0 P03071 0          LDA     DAYFOL                         01222
02206  15600066 15 1  00066 2          INA     66B                            01223
02207  40003071 40 0 P03071 0          STA     DAYFOL                         01224
02210  17477700 17 1  07700 0          ANA,S   7700B                          01225
02211  04601200 04 1  01200 2          ASE     1400B                          01226
02212  01002227 01 0 P02227 0          UJP     PICK                           01227
02213  20003071 20 0 P03071 0          LDA     DAYFOL                         01228
02214  15606600 15 1  06600 2          INA     6600B                          01229
02215  40003071 40 0 P03071 0          STA     DAYFOL                         01230
02216  12777763 12 0  77763 0          SMA     -12                            01231
02217  17400077 17 1  00077 0          ANA,S   77B                            01232
02220  04600012 04 1  00012 2          ASE     10                             01233
02221  01002227 01 0 P02227 0          UJP     PICK                           01234
02222  20003071 20 0 P03071 0          LDA     DAYFOL                         01235
02223  14700066 14 1  00066 3          ENQ     66B                            01236
02224  12400014 12 1  00014 0          SHQ     12                             01237
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02225  53040000 53 0  40000 0          AQA
02226  40003071 40 0 P03071 0          STA     DAYFOL
02227  01000711 01 0 P00711 0  PICK    UJP     PICKTA

02230  20003062 20 0 P03062 0          LDA     SIND
02231  21000127 21 0 P00127 0          LDQ     CARDS
02232  15700001 15 1  00001 3          INQ     1
02233  03602246 03 1 P02246 2          AQJ,GE  PICKA
02234  54103061 54 0 P03061 1          LDI     PICNT,1
02235  01502236 01 1 P02236 1          UJP,I   *+1,1
02236  14002275 14 0 P02275 0          NOP     PICA
02237  14002412 14 0 P02412 0          NOP     PICB
02240  14002275 14 0 P02275 0          NOP     PICA
02241  14002472 14 0 P02472 0          NOP     PICC
02242  14002275 14 0 P02275 0          NOP     PICA
02243  14002412 14 0 P02412 0          NOP     PICB
02244  14002275 14 0 P02275 0          NOP     PICA
02245  14001107 14 0 P01107 0          NOP     DAYCHECK

02246  20003061 20 0 P03061 0  PICKA   LDA     PICNT
02247  04600000 04 1  00000 2          ASE     0
02250  01001107 01 0 P01107 0          UJP     DAYCHECK

                                          TERMINATE JOB...

02251  14602261 14 1 P02261 2          ENA     JENDA
02252  77600400 77 1  00400 2          PAUS    400B
02253  01002252 01 0 P02252 0          UJP     *-1
02254  00702123 00 1 X02123 3          RTJ     PRINT
02255  77600400 77 1  00400 2          PAUS    400B
02256  01002255 01 0 P02255 0          UJP     *-1
02257  00111471 00 0 P11471 1          SJ1     PAD
02260  00077777 00 0  77777 0          HLT     **
02261  03002264 03 0 P02264 0  JENDA   03      JEND
02262          00440044                VFD     A12/36,A12/36
02263  05000000 05 0  00000 0          05
02264          41462260        JEND    RCD     9,JOB COMPLETED ..... ALSEPPI
02265          23464447
02266          43256325
02267          24603333
02270          33333360
02271          21436225
02272          47473160
02273          60606060
02274          60606060
02275  54303062 54 0 P03062 3  PICA    LDI     SIND,3
02276  20003070 20 0 P03070 0          LDA     DAYCNT
02277  21306275 21 0 P06275 3          LDQ     DAYS,3
02300  03502342 03 1 P02342 1          AQJ,NE  PICAA
02301  41003073 41 0 P03073 0          STQ     DTA
02302  20306251 20 0 P06251 3          LDA     PIRO,3
02303  44002041 44 0 P02041 0          SWA     FMA
02304  15477770 15 1  77770 0          INA,S   -7
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02305  53600000 53 1  00000 2          TAI     2
02306  14600002 14 1  00002 2          ENA     2
02307  40002364 40 0 P02364 0          STA     TMSG+5
02310  14602354 14 1 P02354 2          ENA     TMSGA
02311  77600400 77 1  00400 2          PAUS    400B
02312  01002311 01 0 P02311 0          UJP     *-1
02313  00702254 00 1 X02254 3          RTJ     PRINT
02314  14600000 14 1  00000 2          ENA     0
02315  40001751 40 0 P01751 0          STA     RECA
02316  40003105 40 0 P03105 0          STA     PRIA
02317  00002320 00 0 P02320 0          HLT     *+1
02320  14600002 14 1  00002 2          ENA     2
02321  00700562 00 1 P00562 3          RTJ     LBWRT          WRITE LABEL RECORDS- UNIT 2
02322  20200002 20 0  00002 2          LDA     2,2
02323  40003131 40 0 P03131 0          STA     WIA+3
02324  14601764 14 1 P01764 2          ENA     WAF
02325  40200006 40 0  00006 2          STA     6,2
02326  14600000 14 1 C00000 2          ENA     BUF1
02327  40200005 40 0  00005 2          STA     5,2
02330  40200004 40 0  00004 2          STA     4,2
02331  15602100 15 1  02100 2          INA     2100B
02332  40200003 40 0  00003 2          STA     3,2
02333  14602336 14 1 P02336 2          ENA     *+3
02334  44200007 44 0  00007 2          SWA     7,2
02335  01277776 01 0  77776 2          UJP     -1,2

02336  14600001 14 1  00001 2          ENA     1
02337  34003061 34 0 P03061 0          RAD     PICNT
02340  34003062 34 0 P03062 0          RAD     SIND
02341  01002227 01 0 P02227 0          UJP     PICK

02342  03702552 03 1 P02552 3  PICAA   AQJ,LT  PICAB
02343  41002406 41 0 P02406 0          STQ     DMSG+8
02344  15300001 15 0  00001 3          INI     1,3
02345  47302403 47 0 P02403 3          STI     DMSG+5,3

02346  14602373 14 1 P02373 2          ENA     DMSGA
02347  77600400 77 1  00400 2          PAUS    400B
02350  01002347 01 0 P02347 0          UJP     *-1
02351  00702313 00 1 X02313 3          RTJ     PRINT

02352  47303062 47 0 P03062 3          STI     SIND,3
02353  01002227 01 0 P02227 0          UJP     PICK

02354  03002357 03 0 P02357 0  TMSGA   03      TMSG
02355          00600060                VFD     A12/48,A12/48
02356  05000000 05 0  00000 0          05

02357          60622165        TMSG    BCD     12, SAVE TAPE ON UNIT      ,MOUNT NEW TAPE,PUSH GO.
02360          25606321
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02361          47256045
02362          45606445
02363          31636060
02364          60606060
02365          73444664
02366          45636045
02367          25666063
02370          21472673
02371          47646230
02372          60274633
02373  03002376 03 0 P02376 0  DMSGA   03      DMSG                                                  01337
02374          00000060                VFD     A12/48,A12/48                                         01338
02375  05000000 05 0  00000 0          05                                                            01339
02376          23214545         DMSG    BCD     12,CANNOT PROCESS CARD-    ,DAYS-      IS PASSED.   01340
02377          46636047
02400          51462325
02401          62625023
02402          21512440
02403          60606060
02404          73242170
02405          62406060
02406          60606060
02407          31626047
02410          21626225
02411          24336060                                                                              01341
                                                                                                     01342
                                                                                                     01343
02412  54303062 54 0 P03062 3  PICB    LDI     SIND,3                                                01344
02413  20003070 20 0 P03070 0          LDA     DAYCNT                                                01345
02414  21306275 21 0 P06275 3          LDQ     DAYS,3                                                01346
02415  03502460 03 1 P02460 1          AQJ,NE  PICBA                                                 01347
02416  41003074 41 0 P03074 0          STQ     DTB                                                   01348
02417  20306251 20 0 P06251 3          LDA     PIRO,3                                                01349
02420  44002045 44 0 P02045 0          SWA     FMB                                                   01350
02421  15477770 15 1  77770 0          INA,S   -7                                                    01351
02422  53600000 53 1  00000 2          TAI     2                                                     01352
02423  14600003 14 1  00003 2          ENA     3                                                     01353
02424  40002364 40 0 P02364 0          STA     TMSG+5                                                01354
02425  14602354 14 1 P02354 2          ENA     TMSGA                                                 01355
02426  77600400 77 1  00400 2          PAUS    400B                                                  01356
02427  01002426 01 0 P02426 0          UJP     *-1                                                   01357
02430  00702351 00 1 A02351 3          RTJ     PRINT                                                 01358
02431  00002432 00 0 P02432 0          HLT     *+1                                                   01359
02432  14600000 14 1  00000 2          ENA     0                                                     01360
02433  40001752 40 0 P01752 0          STA     RECB                                                  01361
02434  40003106 40 0 P03106 0          STA     PRIB                                                  01362
02435  14600003 14 1  00003 2          ENA     3                                                     01363
02436  00700562 00 1 P00562 3          RTJ     LBWRT          WRITE LABEL RECORDS- UNIT 3            01364
02437  20200002 20 0  00002 2          LDA     2,2                                                   01365
02440  40003225 40 0 P03225 0          STA     WIB+3                                                 01366
02441  14601766 14 1 P01766 2          ENA     WBF                                                   01367
02442  40200006 40 0  00006 2          STA     6,2                                                   01368
02443  14604200 14 1 C04200 2          ENA     BUF2                                                  01369
02444  40200005 40 0  00005 2          STA     5,2
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02445 40200004 40 0 00004 2          STA     4,2                          01370
02446 15602100 15 1 02100 2          INA     2100B                        01371
02447 40200003 40 0 00003 2          STA     3,2                          01372
02450 14602453 14 1 P02453 2         ENA     *+3                          01373
02451 44200007 44 0 00007 2          SWA     7,2                          01374
02452 01277776 01 0 77776 2          UJP     -1,2                         01375
                                                                          01376
                                                                          01377
02453 14600002 14 1 00002 2          ENA     2                            01378
02454 34003061 34 0 P03061 0         RAD     PICNT                        01379
02455 14600001 14 1 00001 2          ENA     1                            01380
02456 34003062 34 0 P03062 0         RAD     SIND                         01381
02457 01002227 01 0 P02227 0         UJP     PICK                         01382
                                                                          01383
02460 03702552 03 1 P02552 3 PICBA   AQJ,LT  PICAB                        01384
02461 41002406 41 0 P02406 0         STO     DMSG+8                       01385
02462 15300001 15 0 00001 3          INI     1,3                          01386
02463 47302403 47 0 P02403 3         STI     DMSG+5,3                     01387
02464 14602373 14 1 P02373 2         ENA     DMSGA                        01388
02465 77600400 77 1 00400 2          PAUS    400B                         01389
02466 01002465 01 0 P02465 0         UJP     *-1                          01390
02467 00702430 00 1 A02430 3         RTJ     PRINT                        01391
                                                                          01392
02470 47303062 47 0 P03062 3         STI     SIND,3                       01393
02471 01002227 01 0 P02227 0         UJP     PICK                         01394
                                                                          01395
                                                                          01396
02472 54303062 54 0 P03062 3 PICC    LDI     SIND,3                       01397
02473 20003070 20 0 P03070 0         LDA     DAYCNT                       01398
02474 21306275 21 0 P06275 3         LDQ     DAYS,3                       01399
02475 03502540 03 1 P02540 1         AQJ,NE  PICCA                        01400
02476 41003075 41 0 P03075 0         STO     DIC                          01401
02477 20305251 20 0 P05251 3         LDA     PIRQ,3                       01402
02500 44002051 44 0 P02051 0         SWA     FNC                          01403
02501 1547777o 15 1 77770 0          INA,S   -7                           01404
02502 53600000 53 1 00000 2          TAI     2                            01405
02503 14600004 14 1 00004 2          ENA     4                            01406
02504 40002364 40 0 P02364 0         STA     TMSG+5                       01407
02505 14602354 14 1 P02354 2         ENA     TMSGA                        01408
02506 77600400 77 1 00400 2          PAUS    400B                         01409
02507 01002506 01 0 P02506 0         UJP     *-1                          01410
02510 00702467 00 1 A02467 3         RTJ     PRINT                        01411
02511 14600000 14 1 00000 2          ENA     0                            01412
02512 40001753 40 0 P01753 0         STA     RECC                         01413
02513 40003107 40 0 P03107 0         STA     PRIC                         01414
02514 00002515 00 0 P02515 0         HLT     *+1                          01415
02515 14600004 14 1 00004 2          ENA     4                            01416
02516 00700562 00 1 P00562 3         RTJ     LBWRT       WRITE LABEL RECORD- UNIT 4  01417
02517 20200002 20 0 00002 2          LDA     2,2                          01418
02520 40003321 40 0 P03321 0         STA     WTC+3                        01419
02521 14601770 14 1 P01770 2         ENA     WCF                          01420
02522 40200006 40 0 00006 2          STA     6,2                          01421
02523 14610400 14 1 C10400 2         ENA     BUF3                         01422
02524 40200005 40 0 00005 2          STA     5,2                          01423
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02525  40200004 40 0  00004 2          STA     4,2
02526  15602100 15 1  02100 2          INA     2100B
02527  40200003 40 0  00003 2          STA     3,2
02530  14602533 14 1 P02533 2          ENA     *+3
02531  44200007 44 0  00007 2          SWA     7,2
02532  01277776 01 0  77776 2          UJP     -1,2

02533  14600004 14 1  00004 2          ENA     4
02534  34003061 34 0 P03061 0          RAD     PICNT
02535  14600001 14 1  00001 2          ENA     1
02536  34003062 34 0 P03062 0          RAD     SIND
02537  01002227 01 0 P02227 0          UJP     PICK

02540  03702552 03 1 P02552 3  PICCA   AQJ,LT  PICAB
02541  41002406 41 0 P02406 0          STQ     DMSG+8
02542  15300001 15 0  00001 3          INI     1,3
02543  47302403 47 0 P02403 3          STI     DMSG+5,3
02544  14602373 14 1 P02373 2          ENA     DMSGA
02545  77600400 77 1  00400 2          PAUS    400B
02546  01002545 01 0 P02545 0          UJP     *-1
02547  00702510 00 1 X02510 3          RTJ     PRINT
02550  47303062 47 0 P03062 3          STI     SIND,3
02551  01002227 01 0 P02227 0          UJP     PICK

02552  21003061 21 0 P03061 0  PICAB   LDQ     PICNT
02553  04700000 04 1  00000 3          QSE     0
02554  01001107 01 0 P01107 0          UJP     DAYCHECK
02555  15600001 15 1  00001 2          INA     1
02556  40003070 40 0 P03070 0          STA     DAYCNT
02557  01002227 01 0 P02227 0          UJP     PICK
```

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02560  00703110 00 1 P03110 3          RTJ     WRTA                                    01458
02561  21001764 21 0 P01764 0  TERM1   LDQ     WAF                                     01459
02562  04700000 04 1  00000 3          QSE     0                                       01460
02563  01002560 01 0 P02560 0          UJP     TERM1-1                                 01461
                                                                                       01462
02564  20002041 20 0 P02041 0          LDA     FMA                                     01463
02565  14703110 14 1 P03110 3          ENQ     WRTA                                    01464
02566  41003027 41 0 P03027 0          STQ     TERTMP                                  01465
02567  00702747 00 1 P02747 3          RTJ     TERWRT                                  01466
02570  00702112 00 1 A02112 3          RTJ     TAPESEL                                 01467
02571  00000002 00 0  00002 0          OU      02                                      01468
02572  00002627 00 0 P02627 0          OU      TERS                                    01469
02573  01002570 01 0 P02570 0          UJP     *-3                                     01470
                                                                                       01471
02574  34002041 34 0 P02041 2          LDI     FMA,2                                   01472
02575  15777775 15 0  77775 2          INI     -1,2                                    01473
02576  25000000 25 0  00000 2          LDAQ    0,S                                     01474
02577  40003656 40 0 P03656 0          STA     FORM+1                                  01475
02600  15703715 15 1  03715 3          INQ     3(15B                                   01476
02601  41003657 41 0 P03657 0          STQ     FORM+2                                  01477
02602  20001751 20 0 P01751 0          LDA     RECA                                    01478
02603  00704103 00 1 P04103 3          RTJ     BCDOCT                                  01479
02604  40003664 40 0 P03664 0          STA     FORM+7                                  01480
02605  20003060 20 0 P03060 0          LDA     ALNUM                                   01481
02606  00704103 00 1 P04103 3          RTJ     BCDOCT                                  01482
02607  12000014 12 0  00014 0          SMA     12                                      01483
02610  40003663 40 0 P03663 0          STA     FORM+6                                  01484
02611  20003065 20 0 P03065 0          LDA     PRIA                                    01485
02612  00704103 00 1 P04103 3          RTJ     BCDOCT                                  01486
02613  40003672 40 0 P03672 0          STA     FORM+13                                 01487
02614  20011726 20 0 P11726 0          LDA     =M 2                                    01488
02615  40003700 40 0 P03700 0          STA     FORM+19                                 01489
02616  00703636 00 1 P03636 3          RTJ     PRTB    PRINT OUTPUT STATUS PER PI      01490
02617  14603055 14 1 P03055 2          ENA     RLS                                     01491
02620  44002041 44 0 P02041 0          SWA     FMA                                     01492
02621  20003061 20 0 P03061 0          LDA     PICNT                                   01493
02622  17477776 17 1  77776 0          ANA,S   77776B                                  01494
02623  40003061 40 0 P03061 0          STA     PICNT                                   01495
02624  14600004 14 1  00004 2          ENA     4                                       01496
02625  40003077 40 0 P03077 0          STA     WAF                                     01497
02626  01002133 01 0 P02133 0          UJP     TER1                                    01498
02627          15151005         TERS    OCT     15151005                                01499
02630          77777777                 OCT     77777777                                01500
                                                                                       01501
02631  00703204 00 1 P03204 3          RTJ     WRTB                                    01502
02632  21001766 21 0 P01766 0  TERM2   LDQ     WBF                                     01503
02633  04700000 04 1  00000 3          QSE     0                                       01504
02634  01002631 01 0 P02631 0          UJP     TERM2-1                                 01505
                                                                                       01506
02635  20002045 20 0 P02045 0          LDA     FMB                                     01507
02636  14703204 14 1 P03204 3          ENQ     WRTB                                    01508
02637  41003027 41 0 P03027 0          STQ     TERTMP                                  01509
02640  00702747 00 1 P02747 3          RTJ     TERWRT                                  01510
                                                                                       01511
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02641  00702570 00 1 X02570 3          RTJ     TAPESEL
02642  00000003 00 0  00003 0          00      03
02643  00002627 00 0 P02627 0          00      TERS
02644  01002641 01 0 P02641 0          UJP     *-3

02645  54202045 54 0 P02045 2          LDI     FMB,2
02646  15277770 15 0  77770 2          INI     -7,2
02647  25200000 25 0  00000 2          LDAQ    0,2
02650  40003656 40 0 P03656 0          STA     FORB+1
02651  15703715 15 1  03715 3          INQ     37158
02652  41003657 41 0 P03657 0          STQ     FORB+2
02653  20003060 20 0 P03060 0          LDA     ALNUM
02654  00704103 00 1 P04103 3          RTJ     BCDOCT
02655  12000014 12 0  00014 0          SHA     12
02656  40003663 40 0 P03663 0          STA     FORB+6
02657  20001752 20 0 P01752 0          LDA     RECB
02660  00704103 00 1 P04103 3          RTJ     BCDOCT
02661  40003664 40 0 P03664 0          STA     FORB+7
02662  20003105 20 0 P03105 0          LDA     PRTB
02663  00704103 00 1 P04103 3          RTJ     BCDOCT
02664  40003672 40 0 P03672 0          STA     FORB+13
02665  20011725 20 0 P11725 0          LDA     =H 3
02666  40003700 40 0 P03700 0          STA     FORB+19
02667  00703636 00 1 P03636 3          RTJ     PRTB        PRINT OUTPUT TAPE STATUS
02670  14603055 14 1 P03055 2          ENA     RLS
02671  44002045 44 0 P02045 0          SWA     FMB
02672  20003061 20 0 P03061 0          LDA     PICNT
02673  17477775 17 1  77775 0          ANA,S   777758
02674  40003061 40 0 P03061 0          STA     PICNT
02675  14600004 14 1  00004 2          ENA     4
02676  40003077 40 0 P03077 0          STA     WWF
02677  01002141 01 0 P02141 0          UJP     TER2

02700  00703300 00 1 P03300 3          RTJ     WRTC
02701  21001770 21 0 P01770 0  TERM3   LDQ     WCF
02702  04700000 04 1  00000 3          QSE     0
02703  01002700 01 0 P02700 0          UJP     TERM3-1

02704  20002051 20 0 P02051 0          LDA     FMC
02705  14703300 14 1 P03300 3          ENQ     WRTC
02706  41003027 41 0 P03027 0          STQ     TERTMP
02707  00702747 00 1 P02747 3          RTJ     TERWRT
02710  00702641 00 1 X02641 3          RTJ     TAPESEL
02711  00000004 00 0  00004 0          00      04
02712  00002627 00 0 P02627 0          00      TERS
02713  01002710 01 0 P02710 0          UJP     *-3

02714  54202051 54 0 P02051 2          LDI     FMC,2
02715  15277770 15 0  77770 2          INI     -7,2
02716  25200000 25 0  00000 2          LDAQ    0,2
02717  40003656 40 0 P03656 0          STA     FORB+1
02720  15703715 15 1  03715 3          INQ     37158
02721  41003657 41 0 P03657 0          STQ     FORB+2
02722  20003060 20 0 P03060 0          LDA     ALNUM
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02723  00704103 00 1 P04103 3          RTJ     BCDOCT
02724  12000014 12 0  00014 0          SHA     12
02725  40003663 40 0 P03663 0          STA     FORB+6
02726  20001753 20 0 P01753 0          LDA     RECC
02727  00704103 00 1 P04103 3          RTJ     BCDOCT
02730  40003664 40 0 P03664 0          STA     FORB+7
02731  20003107 20 0 P03107 0          LDA     PRIC
02732  00704103 00 1 P04103 3          RTJ     BCDOCT
02733  40003672 40 0 P03672 0          STA     FORB+13
02734  20011724 20 0 P11724 0          LDA     =H 4
02735  40003700 40 0 P03700 0          STA     FORB+19
02736  00703636 00 1 P03636 3          RTJ     PRTC        PRINT OUTPUT PI TAPE STATUS
02737  14603055 14 1 P03055 2          ENA     RLS
02740  44002051 44 0 P02051 0          SWA     FMC
02741  20003061 20 0 P03061 0          LDA     PICNT
02742  17477773 17 1  77773 0          ANA,S   777738
02743  40003061 40 0 P03061 0          STA     PICNT
02744  14600004 14 1  00004 2          ENA     4
02745  40003077 40 0 P03077 0          STA     WWF
02746  01002147 01 0 P02147 0          UJP     TERB3

02747  01077777 01 0  77777 0  TERWRT  UJP     **          WRITE LAST TWO RECORDS ON TAPE
02750  15477772 15 1  77772 0          INA,S   -5
02751  53600000 53 1  00000 2          TAI     2           (ADDRESS OF EXPERIMENT)
02752  20200002 20 0  00002 2          LDA     2,2         I-O BUFFER POINT
02753  21200001 21 0  00001 2          LDQ     1,2         SECOND BUFFER ADDRESS
02754  03603030 03 1 P03030 2          AQJ,GE  TERB2
02755  14700001 14 1  00001 3          ENQ     1
02756  41600004 41 1  00004 2          STQ,I   4,2
02757  53700000 53 1  00000 3          TAI     3
02760  14600002 14 1  00002 2          ENA     2
02761  44003003 44 0 P03003 0          SWA     TWXF
02762  20200001 20 0  00001 2          LDA     1,2         B2
02763  53500000 53 1  00000 1          TAI     1
02764  30200000 30 0  00000 2          ADA     0,2         RECORD LENGTH
02765  44003007 44 0 P03007 0          SWA     TONES
02766  20200003 20 0  00003 2          LDA     3,2         B1
02767  30200000 30 0  00000 2  TZERO   ADA     0,2         RECORD LENGTH
02770  44002773 44 0 P02773 0          SWA     *+3
02771  14600000 14 1  00000 2          ENA     0
02772  40300000 40 0  00000 3          STA     0,3
02773  10302773 10 0 P02773 3          ISI     *,3
02774  01002772 01 0 P02772 0          UJP     *-2
02775  77200002 77 0  00002 2          EXS     2,0
02776  01002775 01 0 P02775 0          UJP     *-1
02777  20003027 20 0 P03027 0          LDA     TERTMP
03000  44003013 44 0 P03013 0          SWA     TONES+4
03001  44003002 44 0 P03002 0          SWA     *+1
03002  00703002 00 1 P03002 3          RTJ     *           *= WRTA,WRTB,OR WRTC...
03003  14703003 14 1 P03003 3  TWXF    ENQ     *           * 1=B1 2=B2
03004  41600004 41 1  00004 2          STQ,I   4,2
03005  20003026 20 0 P03026 0          LDA     ODONE
03006  40100000 40 0  00000 1          STA     0,1
03007  10103007 10 0 P03007 1  TONES   ISI     *,1
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03010 01003006 01 0 P03006 0          UJP     *-2                                    01620
03011 77200002 77 0  00002 2          EAS     2,0                                    01621
03012 01003011 01 0 P03011 0          UJP     *-1                                    01622
03013 00702013 00 1 P03013 3          RTJ     *       *= WRTA,WRTB,OR WRTC           01623
03014 21600004 21 1  00004 2          LDA,I   4,2                                    01624
03015 04700000 04 1  00000 3          QSE     0                                      01625
03016 01003013 01 0 P02013 0          UJP     *-3                                    01626
03017 77200002 77 0  00002 2          EAS     2,0                                    01627
03020 01003017 01 0 P03017 0          UJP     *-1                                    01628
03021 77202000 77 0  02000 2          EAS     2000B,0                                01629
03022 01003015 01 0 P03015 0          UJP     *-5     ERROR ON VERY LST WRITE        01630
03023 77100000 77 0  01000 1          SEL     0,0                                    01631
03024 01003003 01 0 P03003 0          UJP     *-1                                    01632
03025 01402747 01 1 P02747 0          UJP,I   TERMRT                                 01633
                                                                                     01634
03026          11111111       OCONE   OCT     11111111                               01635
03027          00000000       TERTMP  OCT     0                                      01636
                                                                                     01637
03030 14700002 14 1  00002 3  TERB2   ENQ     2                                      01638
                                                                                     01639
03031 41600004 41 1  00004 2          STQ,I   4,2                                    01640
03032 53700000 53 1  00000 3          TAI     3                                      01641
03033 14600001 14 1  00001 2          ENA     1                                      01642
03034 44003003 44 0 P03003 0          SWA     TWKF                                   01643
03035 20200003 20 0  00003 2          LDA     3,2     B1                             01644
03036 53700000 53 1  00000 1          TAI     1                                      01645
03037 30200000 30 0  00000 2          ADA     0,2                                    01646
03040 44003007 44 0 P03007 0          SWA     TONES                                  01647
03041 20200001 20 0  00001 2          LDA     1,2     B2                             01648
03042 01002767 01 0 P02767 0          UJP     TZERO                                  01649
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03043  00004132 00 0 P04132 0  ADR     00      ENGR          ENGINEERING HOUSEKEEPING                01651
03044  00004232 00 0 P04232 0          00      LSM           LUNAR SURFACE MAGNETOMETER              01652
03045  00004703 00 0 P04703 0          00      HFL           HEAT FLOW                               01653
03046  00004527 00 0 P04527 0          00      SWS           SOLAR WINDS                             01654
03047  00004414 00 0 P04414 0          00      SIDE        ION DECTOR                                01655
03050  00005060 00 0 P05060 0          00      CCGE          COLD CATHODE                            01656
03051  00005624 00 0 P05624 0          00      CPL         CHARGE PARTICLE                           01657
03052  00004414 00 0 P04414 0          00      SIDE          CCGE / SIDE                             01658
03053  00005736 00 0 P05736 0          00      LEAM                                                  01659
03054  00006040 00 0 P06040 0          00      LMS                                                   01660
                                                                                                     01661
03055  14077777 14 0  77777 0  RLS     NOP     **                                                    01662
03056  01403055 01 1 P03055 0          NOP,I   *-1                                                   01663
                                                                                                     01664
                                               CONSTANTS                                             01665
                                                                                                     01666
03057          00000001        UFLG    OCT     1                                                     01667
03060          00000000        ALNUM   OCT     0                                                     01668
03061          00000000        PICNT   OCT     0                                                     01669
03062          00000000        SING    OCT     0                                                     01670
03063          1777C000        DOIR    OCT     1777C000                                              01671
03064          00000000        DATA    OCT     0                                                     01672
03065          00000000        INPUTA  OCT     0                                                     01673
03066          00000000        TIMADR  OCT     0                                                     01674
03067          00000000        DATADR  OCT     0                                                     01675
03070          00000000        DAYCNT  OCT     0                                                     01676
03071          00000000        DAYFOL  OCT     0                                                     01677
03072          00000000        PARIC   OCT     0                                                     01678
03073          00000000        DTA     OCT     0                                                     01679
03074          00000000        DTB     OCT     0                                                     01680
03075          00000000        DTC     OCT     0                                                     01681
03076          00000000        STATUS  OCT     0                                                     01682
                                                                                                     01683
03077          00000004        WWF     OCT     4                                                     01684
03100          00000000        CCGTEMP OCT     0                                                     01685
03101          00000000        HOLD1   OCT     0                                                     01686
03102          00000000        HOLD3   OCT     0                                                     01687
03103          00000000        HOLD2   OCT     0                                                     01688
03104          33377333        PRI     OCT     33377333                                              01689
03105          00000000        PRIA    OCT     0                                                     01690
03106          00000000        PRIB    OCT     0                                                     01691
03107          00000000        PRIC    OCT     0                                                     01692
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03110  01077777 01 0  77777 0  WRTA    UJP     **      ROUTINE TO WRITE ON TAPE UNIT2          01694
03111  77200002 77 0  00002 2          EXS     S,0     BUSY- (STATUS OF LAST WRITE)            01695
03112  01003167 01 0 P03167 0          UJP     WTAA                                            01696
03113  77202000 77 0  02000 2          EXS     2000B,0                                         01697
03114  01003374 01 0 P03374 0          UJP     WRAP    PARITY ERROR                            01698
03115  77204440 77 0  04440 2          EXS     4440B,0                                         01699
03116  01003402 01 0 P03402 0          UJP     WRAQ    PROBLEM                                 01700
                                                                                              01701
                                                 (WAF IN Q)  GOOD WRITE STATUS                01702
03117  20003101 20 0 P03101 0          LDA     HOLD1                                           01703
03120  04600000 04 1  00000 2          ASE     0                                               01704
03121  03503162 03 1 P03162 1          AMJ,NE  WXA     OTHER OUTPUT BUFFER WAITING             01705
03124  14600000 14 1 C00000 2          ENA     BUF1       CLEAR FOR WRITE                      01706
03123  04700001 04 1  00001 3          QSE     1                                               01707
03124  15602100 15 1  02100 2          INA     2100B                                           01708
03125  44003130 44 0 P03130 0          SWA     WTA+2                                           01709
03126  06001620 06 1 A01620 3  WTA     RTJ     TAPEART                                         01710
03127  00000002 00 0  00002 0          00      0S                                              01711
03130  00000000 00 0 C00000 0          00      BUF1                                            01712
03131  00077777 00 0  77777 0          00      **      RECORD LENGHT                           01713
03132  01003126 01 0 P03126 0          UJP     *-4       REJECT                                01714
03133  20003077 20 0 P03077 0          LDA     WWF                                             01715
03134  14700001 14 1  00001 3          ENQ     1                                               01716
03135  41003077 41 0 P03077 0          STQ     WWF                                             01717
03136  03003522 03 0 P03522 0          AZJ,EQ  WRP     WWF=0 WHEN WRITE IS BEING REPEATTED      01718
03137  20003101 20 0 P03101 0          LDA     HOLD1                                           01719
03140  03003154 03 0 P03154 0          AZJ,EQ  WYA                                             01720
03141  21001764 21 0 P01764 0          LDQ     WAF                                             01721
03142  03003154 03 1 P03154 0          AMJ,EQ  WYA                                             01722
03143  14700000 14 1  00000 3          ENQ     0                                               01723
03144  41003101 41 0 P03101 0          STQ     HOLD1                                           01724
03145  14600001 14 1  00001 2          ENA     1                                               01725
03146  34001751 34 0 P01751 0          RAD     RECA                                            01726
03147  77200002 77 0  00002 2          EXS     2,0                                             01727
03150  01003147 01 0 P03147 0          UJP     *-1                                             01728
03151  77202000 77 0  02000 2          EXS     2000B,0                                         01729
03152  01003374 01 0 P03374 0          UJP     WRAP                                            01730
03153  01403110 01 1 P03110 0          UJP,I   WRTA                                            01731
                                                                                              01732
03154  14600000 14 1  00000 2  WYA     ENA     0                                               01733
03155  40001764 40 0 P01764 0          STA     WAF                                             01734
03156  40003101 40 0 P03101 0          STA     HOLD1                                           01735
03157  14600001 14 1  00001 2          ENA     1                                               01736
03160  34001751 34 0 P01751 0          RAD     RECA                                            01737
03161  01403110 01 1 P03110 0          UJP,I   WRTA                                            01738
                                                                                              01739
03162  14600000 14 1 C00000 2  WXA     ENA     BUF1          ONE BUFFER ON HOLD                01740
03163  04700002 04 1  00002 3          QSE     2                                               01741
03164  15602100 15 1  02100 2          INA     2100B                                           01742
03165  44003130 44 0 P03130 0          SWA     WTA+2                                           01743
03166  01003126 01 0 P03126 0          UJP     WTA                                             01744
                                                                                              01745
                                                 (WAF IS IN Q)     CHANNEL IS BUSY            01746
03167  20003101 20 0 P03101 0  WTAA    LDA     HOLD1                                           01747
```

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03170  03003173 03 0 P03173 0          AZJ,EQ    *+3                                    01748
03171  03003174 03 1 P03174 0          AUJ,EQ    *+3                                    01749
03172  01003111 01 0 P03111 0          UJP       WRTA+1   HANG UP UNTIL NOT BUSY        01750
03173  41003101 41 0 P03101 0          STQ       HOLD1                                  01751
03174  20003077 20 0 P03077 0          LDA       WWF                                    01752
03175  04000001 04 1  00001 2          ASE       1                                      01753
03176  01403110 01 1 P03110 0          UJP,I     WRTA                                   01754
03177  77200002 77 0  00002 2          EXS       2,0                                    01755
03200  01003177 01 0 P03177 0          UJP       *-1                                    01756
03201  77202000 77 0  02000 2          EXS       =V00H,0                                01757
03202  01003374 01 0 P03374 0          UJP       WRAP                                   01758
03203  01403110 01 1 P03110 0          UJP,I     WRTA                                   01759
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03204  01077777 01 0  77777 0  WRTB    UJP     **        ROUTINE TO WRITE ON TAPE UNIT3
03205  77200002 77 0  00002 2          EXS     2,0       BUSY- (STATUS OF LAST WRITE)
03206  01003263 01 0 P03263 0          UJP     WTBB
03207  77202000 77 0  02000 2          EXS     2000B,0
03210  01003430 01 0 P03430 0          UJP     WRBP
03211  77204440 77 0  04440 2          EXS     4440B,0
03212  01003436 01 0 P03436 0          UJP     WRBQ

                                                (WBF IN Q)  GOOD WRITE STATUS
03213  20003103 20 0 P03103 0          LDA     HOLD2
03214  04600000 04 1  00000 2          ASE     0
03215  03503256 03 1 P03256 1          AQJ,NE  WXB       OTHER BUFFER WAITING
03216  14604200 14 1 C04200 2          ENA     BUF2        CLEAR FOR WRITING
03217  04700001 04 1  00001 3          QSE     1
03220  15602100 15 1  02100 2          INA     2100B
03221  44003224 44 0 P03224 0          SWA     WTB+2
03222  00703126 00 1 X03126 3  WTB     RTJ     TAPEWRT
03223  00000003 00 0  00003 0          00      03
03224  00004200 00 0 C04200 0          00      BUF2
03225  00077777 00 0  77777 0          00      **          RECORD LENGHT
03226  01003222 01 0 P03222 0          UJP     *-4           REJECT
03227  20003077 20 0 P03077 0          LDA     WWF
03230  14700002 14 1  00002 3          ENQ     2
03231  41003077 41 0 P03077 0          STQ     WWF
03232  03003522 03 0 P03522 0          AZJ,EQ  WRP       WWF=0 WHEN WRITE IS BEING REPEATTED
03233  20003103 20 0 P03103 0          LDA     HOLD2
03234  03003250 03 0 P03250 0          AZJ,EQ  WYB
03235  21001766 21 0 P01766 0          LDQ     WBF
03236  03403250 03 1 P03250 0          AQJ,EQ  WYB
03237  14700000 14 1  00000 3          ENQ     0
03240  41003103 41 0 P03103 0          STQ     HOLD2
03241  14600001 14 1  00001 2          ENA     1
03242  34001752 34 0 P01752 0          RAD     RECB
03243  77200002 77 0  00002 2          EXS     2,0
03244  01003243 01 0 P03243 0          UJP     *-1
03245  77202000 77 0  02000 2          EXS     2000B,0
03246  01003430 01 0 P03430 0          UJP     WRBP
03247  01403204 01 1 P03204 0          UJP,I   WRTB

03250  14600000 14 1  00000 2  WYB     ENA     0
03251  40001766 40 0 P01766 0          STA     WBF
03252  40003103 40 0 P03103 0          STA     HOLD2
03253  14600001 14 1  00001 2          ENA     1
03254  34001752 34 0 P01752 0          RAD     RECB
03255  01403204 01 1 P03204 0          UJP,I   WRTB

03256  14604200 14 1 C04200 2  WXB     ENA     BUF2
03257  04700002 04 1  00002 3          QSE     2
03260  15602100 15 1  02100 2          INA     2100B
03261  44003224 44 0 P03224 0          SWA     WTB+2
03262  01003222 01 0 P03222 0          UJP     WTB

                                                (WBF IS IN Q )    CHANNEL IS BUSY
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03263  20003103 20 0 P03103 0  WTBB    LDA     HOLD2                                  01815
03264  03003267 03 0 P03267 0          AZJ,EQ  *+3                                    01816
03265  03403270 03 1 P03270 0          AWJ,EQ  *+3                                    01817
03266  01003265 01 0 P03265 0          UJP     WRTB+1   HANG UP UNTIL NOT BUSY        01818
03267  41003103 41 0 P03103 0          STW     HOLD2                                  01819
03270  20003077 20 0 P03077 0          LDA     W#F                                    01820
03271  04600002 04 1  00002 2          ASE     2                                      01821
03272  01403264 01 1 P03264 0          UJP,I   WRTB                                   01822
03273  77200002 77 0  00002 2          EXS     2,0                                    01823
03274  01003273 01 0 P03273 0          UJP     *-1                                    01824
03275  77200000 77 0  02000 2          EXS     20000,0                                01825
03276  01003430 01 0 P03430 0          UJP     WRBP                                   01826
03277  01403264 01 1 P03264 0          UJP,I   WRTB                                   01827
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03300  01077777 01 0  77777 0  WRTC   UJP    **        ROUTINE TO WRITE ON TAPE UNIT4
03301  77200002 77 0  00002 2         EXS    2,0       BUSY- (STATUS OF LAST WRITE)
03302  01003357 01 0 P03357 0         UJP    WTCC
03303  77202000 77 0  02000 2         EXS    2000B,0
03304  01003465 01 0 P03465 0         UJP    WRCP
03305  77204440 77 0  04440 2         EXS    4440B,0
03306  01003473 01 0 P03473 0         UJP    WRCQ

                                                   (WCF IS IN Q)  GOOD WRITE STATUS
03307  20003102 20 0 P03102 0         LDA    HOLD3
03310  04600000 04 1  00000 2         ASE    0
03311  03503352 03 1 P03352 1         AQJ,NE WXC       OTHER BUFFER WAITING
03312  14610400 14 1 C10400 2         ENA    BUF3        CLEAR FOR WRITING
03313  04700001 04 1  00001 3         QSE    1
03314  15602100 15 1  02100 2         INA    2100B
03315  44003320 44 0 P03320 0         SWA    WTC+2
03316  00703222 00 1 P03222 3  WTC    RTJ    TAPEWRT
03317  00000004 00 0  00004 0         00     0*
03320  00010400 00 0 C10400 0         00     BUF3
03321  00077777 00 0  77777 0         00     **        RECORD LENGTH
03322  01003316 01 0 P03316 0         UJP    *-4
03323  20003077 20 0 P03077 0         LDA    WWF
03324  14700003 14 1  00003 3         ENQ    3
03325  41003077 41 0 P03077 0         STQ    WWF
03326  03003522 03 0 P03522 0         AZJ,EQ WRP       WWF=0,WHEN WRITE IS BEING REPEATTED
03327  20003102 20 0 P03102 0         LDA    HOLD3
03330  03003344 03 0 P03344 0         AZJ,EQ WYC
03331  21001770 21 0 P01770 0         LDQ    WCF
03332  03403344 03 1 P03344 0         AQJ,EQ WYC
03333  14700000 14 1  00000 3         ENQ    0
03334  41003102 41 0 P03102 0         STQ    HOLD3
03335  14600001 14 1  00001 2         ENA    1
03336  34001753 34 0 P01753 0         RAD    RECC
03337  77200002 77 0  00002 2         EXS    2,0
03340  01003337 01 0 P03337 0         UJP    *-1
03341  77202000 77 0  02000 2         EXS    2000B,0
03342  01003465 01 0 P03465 0         UJP    WRCP
03343  01403300 01 1 P03300 0         UJP,I  WRTC


03344  14600000 14 1  00000 2  WYC    ENA    0
03345  40001770 40 0 P01770 0         STA    WCF
03346  40003102 40 0 P03102 0         STA    HOLD3
03347  14600001 14 1  00001 2         ENA    1
03350  34001753 34 0 P01753 0         RAD    RECC
03351  01403300 01 1 P03300 0         UJP,I  WRTC

03352  14610400 14 1 C10400 2  WXC    ENA    BUF3
03353  04700002 04 1  00002 3         QSE    2
03354  15602100 15 1  02100 2         INA    2100B
03355  44003320 44 0 P03320 0         SWA    WTC+2
03356  01003316 01 0 P03316 0         UJP    WTC

                                                   (WCF IS IN Q )   CHANNEL IS BUSY
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03357  20003102 20 0 P03102 0  WTCC    LDA     HOLD3                                          01883
03360  03003363 03 0 P03363 0          AZJ,EQ  *+3                                            01884
03361  03403364 03 1 P03364 0          AQJ,EQ  *+3                                            01885
03362  01003301 01 0 P03301 0          UJP     WRTC+1   HANG UP UNTIL NOT BUSY                01886
03363  41003102 41 0 P03102 0          STQ     HOLD3                                          01887
03364  20003077 20 0 P03077 0          LDA     WWF                                            01888
03365  04500003 04 1  00003 2          ASE     3                                              01889
03366  01403300 01 1 P03300 0          UJP,I   WRTC                                           01890
03367  77200002 77 0  00002 2          EXS     2,0                                            01891
03370  01003367 01 0 P03367 0          UJP     *-1                                            01892
03371  77202000 77 0  02000 2          EXS     2,008,0                                        01893
03372  01003465 01 0 P03465 0          UJP     WRCP                                           01894
03373  01403300 01 1 P03300 0          UJP,I   WRTC                                           01895
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03374  14600001 14 1  00001 2  WRAP    ENA     1                                                  01897
03375  54303077 54 0 P03077 3          LDI     WWF,3                                              01898
03376  34303104 34 0 P03104 3          RAD     PRI,3      I/O PARITY ERROR                        01899
03377  00703522 00 1 P03522 3          RTJ     WRP                                                01900
03400  21001764 21 0 P01764 0          LDQ     WAF                                                01901
03401  01003167 01 0 P03167 0          UJP     WTAA                                               01902
03402  14603414 14 1 P03414 2  WRAQ    ENA     WRQAA                                              01903
03403  77600400 77 1  00400 2          PAUS    400B                                               01904
03404  01003403 01 0 P03403 0          UJP     *-1                                                01905
03405  00702547 00 1 X02547 3          RTJ     PRINT                                              01906
03406  77600400 77 1  00400 2          PAUS    400B                                               01907
03407  01003406 01 0 P03406 0          UJP     *-1                                                01908
03410  00003411 00 0 P03411 0          HLT     *+1                                                01909
03411  00703522 00 1 P03522 3          RTJ     WRP                                                01910
03412  21001764 21 0 P01764 0          LDQ     WAF                                                01911
03413  01003167 01 0 P03167 0          UJP     WTAA                                               01912
                                                                                                  01913
03414  03003416 03 0 P03416 0  WRQAA   03      WRQA                                               01914
03415          00500050                VFD     A12/40,A12/40                                      01915
03416          23302523        WRQA    BCD     10,CHECK TAPE UNIT 2, CORRET AND PUSH GO.          01916
03417          42606321
03420          47256064
03421          45316360
03422          02736023
03423          46515125
03424          63602145
03425          24604764
03426          62306027
03427          46336060
                                                                                                  01917
03430  14600001 14 1  00001 2  WRBP    ENA     1                                                  01918
03431  54303077 54 0 P03077 3          LDI     WWF,3                                              01919
03432  34303104 34 0 P03104 3          RAD     PRI,3      I/O PARITY ERROR                        01920
03433  00703522 00 1 P03522 3          RTJ     WRP                                                01921
03434  21001766 21 0 P01766 0          LDQ     WBF                                                01922
03435  01003263 01 0 P03263 0          UJP     WTBB                                               01923
03436  14603450 14 1 P03450 2  WRBQ    ENA     WRQBA                                              01924
03437  77600400 77 1  00400 2          PAUS    400B                                               01925
03440  01003437 01 0 P03437 0          UJP     *-1                                                01926
03441  00703405 00 1 X03405 3          RTJ     PRINT                                              01927
03442  77600400 77 1  00400 2          PAUS    400B                                               01928
03443  01003442 01 0 P03442 0          UJP     *-1                                                01929
03444  00003445 00 0 P03445 0          HLT     *+1                                                01930
03445  00703522 00 1 P03522 3          RTJ     WRP                                                01931
03446  21001766 21 0 P01766 0          LDQ     WBF                                                01932
03447  01003263 01 0 P03263 0          UJP     WTBB                                               01933
03450  03003453 03 0 P03453 0  WRQBA   03      WRQB                                               01934
03451          00500050                VFD     A12/40,A12/40                                      01935
03452  05000000 05 0  00000 0          05                                                         01936
03453          23302523        WRQB    BCD     10,CHECK TAPE UNIT 3, CORRECT AND PUSH GO.         01937
03454          42606321
03455          47256064
03456          45316360
03457          03736023
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03460          46515125
03461          23636021
03462          45246047
03463          64623060
03464          27463360

03465  14600001 14 1  00001 2  WRCP    ENA     1
03466  54303077 54 0 P03077 3          LDI     WWF,3
03467  34003104 34 0 P03104 3          RAD     PRI,3      I/O PARITY ERROR
03470  00703522 00 1 P03522 3          RTJ     WRP
03471  21001770 21 0 P01770 0          LDQ     WCF
03472  01003357 01 0 P03357 0          UJP     WTCC
03473  14003505 14 1 P03505 2  WRCQ    ENA     WRQCA
03474  77500000 77 1  00400 2          PAUS    4000
03475  01003474 01 0 P03474 0          UJP     *-1
03476  00703441 00 1 P03441 3          RTJ     PRINT
03477  77500400 77 1  00400 2          PAUS    4000
03500  01003477 01 0 P03477 0          UJP     *-1
03501  00003502 00 0 P03502 0          HLT     *+1
03502  00703522 00 1 P03522 3          RTJ     WRP
03503  21001770 21 0 P01770 0          LDQ     WCF
03504  01003357 01 0 P03357 0          UJP     WTCC
03505  03003510 03 0 P03510 0  WRQCA   03      WRQC
03506          00500050                VFD     A12/40,A12/40
03507  05000000 05 0  00000 0          05
03510          23302523        WRQC    BCD     10,CHECK TAPE UNIT 4, CORRECT AND PUSH GO.
03511          42606321
03512          47256064
03513          45316360
03514          04736023
03515          46515125
03516          23636021
03517          45246047
03520          64623060
03521          27463360

03522  01077777 01 0  77777 0  WRP     UJP     **
03523  20003077 20 0 P03077 0          LDA     WWF
03524  14700004 14 1  00004 3          ENQ     4          WWF=4  AT INITAL OR AFTER EOF,S
03525  03503530 03 1 P03530 1          AOJ,NE  *+3
03526  77510001 77 1  10001 1          IOCL    1
03527  01403522 01 1 P03522 0          UJP'I   WRP
03530  15000001 15 1  00001 2          INA     1
03531  44003533 44 0 P03533 0          SWA     *+2
03532  00702710 00 1 A02710 3          RTJ     TAPESEL
03533  00077777 00 0  77777 0          00      **
03534  00003545 00 0 P03545 0          00      TBSP
03535  01003532 01 0 P03532 0          UJP     *-3
03536  54303077 54 0 P03077 3          LDI     WWF,3
03537  14600000 14 1  00000 2          ENA     0
03540  40003077 40 0 P03077 0          STA     WWF
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3300 COMPASS/RTS VER 1.1          .....ALSEPPI ALSEP PRINCIAPL INVESTIGATOR          12/12/12  PAGE    50
     03541  V1703541 01 1 P03541 3            UJP,I      #,3                                                  01978
     03546  00003126 00 0 P03126 0            00         WIA                                                  01979
     03545  00003222 00 0 P03222 0            00         WIB                                                  01980
     03544  00003316 00 0 P03316 0            00         WIC                                                  01981
     03545          12167777          TRSP     OCT        14167777                                             01982
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                                                  . . . ROUTINES TO WRITE MESSAGES ON THE PRINTER                                  01984
03546  01003546 01 0 P03546 0   PRTA     UJP     *                                                                                01985
03547  20003070 20 0 P03070 0            LDA     DAYCNT                                                                           01986
03550  40003510 40 0 P03510 0            STA     FORA+2                                                                           01987
03551  20001754 20 0 P01754 0            LDA     RECS                                                                             01988
03552  00704103 00 1 P04103 3            RTJ     BCDOCT                                                                           01989
03553  40003612 40 0 P03612 0            STA     FORA+4                                                                           01990
03554  20003072 20 0 P03072 0            LDA     PARIC                                                                            01991
03555  00704103 00 1 P04103 3            RTJ     BCDOCT                                                                           01992
03556  40003617 40 0 P03617 0            STA     FORA+9                                                                           01993
03557  20001750 20 0 P01750 0            LDA     REPTS                                                                            01994
03558  00704103 00 1 P04103 3            RTJ     BCDOCT                                                                           01995
03561  40003622 40 0 P03622 0            STA     FORA+12                                                                          01996
03562  20001747 20 0 P01747 0            LDA     SEEK                                                                             01997
03563  00704103 00 1 P04103 3            RTJ     BCDOCT                                                                           01998
03564  40003626 40 0 P03626 0            STA     FORA+16                                                                          01999
03565  20001744 20 0 P01744 0            LDA     RETRY                                                                            02000
03566  00704103 00 1 P04103 3            RTJ     BCDOCT                                                                           02001
03567  40003633 40 0 P03633 0            STA     FORA+21                                                                          02002
03570  14600000 19 1 00000 2            ENA     0                                                                                02003
03571  40001754 40 0 P01754 0            STA     RECS                                                                             02004
03572  40003072 40 0 P03072 0            STA     PARIC                                                                            02005
03573  40001750 40 0 P01750 0            STA     REPTS                                                                            02006
03574  40001747 40 0 P01747 0            STA     SEEK                                                                             02007
03575  40001744 40 0 P01744 0            STA     RETRY                                                                            02008
03576  77200002 77 0 00002 2            EXS     2,0                                                                              02009
03577  01003576 01 0 P03576 0            UJP     *-1                                                                              02010
03600  77004000 77 0 04000 0            CON     4000B,0                                                                          02011
03601  01003600 01 0 P03600 0            UJP     *-1                                                                              02012
03602  76003636 76 0 P03636 0            OUTW    0,FORA,FORA+24                                                                   02013
03603  00003606 00 0 P03606 0
03604  01003602 01 0 P03602 0            UJP     *-2                                                                              02014
03605  01403546 01 1 P03546 0            UJP,I   PRTA                                                                             02015
                                                                                                                                 02016
03606          60546000          FORA     BCD     12, *  DAY-   0 ,     0 RECORDS READ      0 LOST                             02017
03607          24217040
03610          60606000
03611          60736000
03612          60606000
03613          60512523
03614          46512402
03615          60512521
03616          24606060
03617          60606000
03620          60434602
03621          63606060
03622          63606000                 BCD     12,   0 REPEATS       0 SEEK ERRORS       0 RETRIES                          02018
03623          60512547
03624          25215362
03625          60606060
03626          60606000
03627          60622525
03630          42602551
03631          51465102
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03632          60606060
03633          60606000
03634          60512563
03635          51312562
03636  01003636 01 0 P03636 0  PRTB   UJP    *
03637  77200002 77 0  00002 2         EXS    2,0
03640  01003637 01 0 P03637 0         UJP    *-1
03641  77[illegible] 77 0  04000 0         CON    4000B,0
03642  01003641 01 0 P03641 0         UJP    *-1
03643  76003701 76 0 P03701 0         OUTW   0,FORB,FORB+20
03644  [illegible] 00 0 P03655 0
03645  01003643 01 0 P03643 0         UJP    *-2
03646  77200002 77 0  00002 2         EXS    2,0
03647  01003646 01 0 P03646 0         UJP    *-1
03650  77100002 77 0  00002 1         SEL    2,0
03651  01003650 01 0 P03650 0         UJP    *-1
03652  77100002 77 0  00002 1         SEL    2,0
03653  01003652 01 0 P03652 0         UJP    *-1
03654  01403636 01 1 P03636 0         UJP,I  PRTB
03655          60333360       FORB   BCD    12, .. XXXXXX ....  APOLLO XX     0 RECORDS WRITTEN
03656          67676767
03657          67676[illegible]
03660          33333360
03661          60214746
03662          43434660
03663          67676060
03664          60606000
03665          60512523
03666          46512452
03667          60665131
03670          63632545
03671          60606060               BCD    8,        0 SKIPS      ON TAPE    X
03672          60606000
03673          60624231
03674          47626060
03675          60606060
03676          46456063
03677          21472560
03700          60606067
03701  01003701 01 0 P03701 0  PRTC   UJP    *
03702  20003060 20 0 P03060 0         LDA    ALNUM
03703  00704103 00 1 P04103 3         RTJ    BCDOCT
03704  12000014 12 0  00014 0         SHA    12
03705  40003747 40 0 P03747 0         STA    FORC+17
03706  77200002 77 0  00002 2         EXS    2,0
03707  01003706 01 0 P03706 0         UJP    *-1
03710  77004000 77 0  04000 0         CON    4000B,0
03711  01003710 01 0 P03710 0         UJP    *-1
03712  77100004 77 0  00004 1         SEL    4,0
```

```
03713  01003712 01 0 P03712 0          UJP     *-1                                          02050
03714  76003750 76 0 P03750 0          OUTW    0,FORC,FORC+18                               02051
03715  00003726 00 0 P03726 0
03716  01003715 01 0 P03715 0          UJP     *-1                                          02052
03717  77200002 77 0  00002 2          EXS     2,0                                          02053
03720  01003717 01 0 P03717 0          UJP     *-1                                          02054
03721  77100002 77 0  00002 1          SEL     2,0                                          02055
03722  01003721 01 0 P03721 0          UJP     *-1                                          02056
03723  77100002 77 0  00002 1          SEL     2,0                                          02057
03724  01003723 01 0 P03723 0          UJP     *-1                                          02058
03725  01403701 01 1 P03701 0          UJP,I   PRTC                                         02059
                                                                                            02060
03726          60606060        FORC    BCD     12,        ALSEP PRINCIPAL INVESTIGATOR FORMAT PROC  02061
03727          60606060
03730          21436225
03731          47604751
03732          31452351
03733          47214360
03734          31456625
03735          62633127
03736          21634651
03737          60264651
03740          44216300
03741          47514623
03742          25626231                BCD     6,ESSING   -   APOLLO XX                      02062
03743          45276060
03744          60406060
03745          60214746
03746          43434660
03747          67676060
                                                                                            02063
                                                                                            02064
03750  01003750 01 0 P03750 0  PRTQ    UJP     *                                            02065
03751  54103066 54 0 P03066 1          LDI     TIMADR,1                                     02066
03752  21100000 21 0  00000 1  PRTQJ   LDQ     0,1                                          02067
03753  14600000 14 1  00000 2          ENA     0                                            02068
03754  13000003 13 0  00003 0          SHAQ    3                                            02069
03755  05600005 05 1  00005 2          ASG     5                                            02070
03756  01004013 01 0 P04013 0          UJP     PRTQT                                        02071
03757  14600000 14 1  00000 2          ENA     0                                            02072
03760  13000003 13 0  00003 0          SHAQ    3                                            02073
03761  05600005 05 1  00005 2          ASG     5                                            02074
03762  01004013 01 0 P04013 0          UJP     PRTQT                                        02075
03763  13000006 13 0  00006 0          SHAQ    6                                            02076
03764  14600000 14 1  00000 2          ENA     0                                            02077
03765  13000014 13 0  00014 0          SHAQ    12                                           02078
03766  21100001 21 0  00001 1          LDQ     1,1                                          02079
03767  51011723 51 0 P11723 0          DVA     =D1000000                                    02080
03770  40004015 40 0 P04015 0          STA     UPPER                                        02081
03771  14100013 14 0  00013 1          ENI     11,1                                         02082
03772  14200005 14 0  00005 2          ENI     5,2                                          02083
03773  14600000 14 1  00000 2  PRTQS   ENA     0                                            02084
03774  51011722 51 0 P11722 0          DVA     =D10                                         02085
03775  43420334 43 1 P04067 0          SQCH    FORT+20,1                                    02086
```

```
03776  15177776 15 0  77776 1          INI     -1,1
03777  13000030 13 0  00030 0          SHAQ    24
04000  02503773 02 1 P03773 2          IJD     PRTQS,2
04001  21004016 21 0 P04016 0          LDQ     UPPER
04002  14200005 14 0  00005 2          ENI     5,2
04003  14600000 14 1  00000 2  PRTQSS  ENA     0
04004  51011722 51 0 P11722 0          DVA     =010
04005  43420334 43 1 P04067 0          SQCH    FORT+20,1
04006  03004012 03 0 P04012 0          AZJ,EQ  *+4
04007  15177776 15 0  77776 1          INI     -1,1
04010  13000030 13 0  00030 0          SHAQ    24
04011  02604003 02 1 P04003 2          IJD     PRTQSS,2
04012  01403750 01 1 P03750 0          UJP,I   PRTQ
04013  15100002 15 0  00002 1  PRTQT   INI     2,1
04014  01003752 01 0 P03752 0          UJP     PRTQJ

04015          00000000        UPPER   OCT     0

04016  01004016 01 0 P04016 0  PRTT    UJP     *
04017  25001745 25 0 P01745 0          LDAW    TIMLAST
04020  17407777 17 1  07777 0          ANA,S   77778
04021  51011723 51 0 P11723 0          DVA     =01000000
04022  40004015 40 0 P04015 0          STA     UPPER
04023  14100012 14 0  00012 1          ENI     11,1
04024  14200005 14 0  00005 2          ENI     5,4
04025  14600000 14 1  00000 2  PRTS    ENA     0
04026  51011722 51 0 P11722 0          DVA     =010
04027  43420374 43 1 P04077 0          SQCH    FORT+52,1
04030  15177776 15 0  77776 1          INI     -1,1
04031  13000030 13 0  00030 0          SHAQ    24
04032  02604025 02 1 P04025 2          IJD     PRTS,2
04033  21004015 21 0 P04015 0          LDQ     UPPER
04034  14200005 14 0  00005 2          ENI     5,2
04035  14600000 14 1  00000 2  PRTSS   ENA     0
04036  51011722 51 0 P11722 0          DVA     =010
04037  43420374 43 1 P04077 0          SQCH    FORT+52,1
04040  03004044 03 0 P04044 0          AZJ,EQ  *+4
04041  15177776 15 0  77776 1          INI     -1,1
04042  13000030 13 0  00030 0          SHAQ    24
04043  02604035 02 1 P04035 2          IJD     PRTSS,2

04044  77200002 77 0  00002 2          EXS     2,0
04045  01004044 01 0 P04044 0          UJP     *-1
04046  77004000 77 0  04000 0          CON     4000B,0
04047  01004046 01 0 P04046 0          UJP     *-1
04050  76004103 76 0 P04103 0          OUTW    0,FORT,FORT+17
04051  00004062 00 0 P04062 0
04052  01004050 01 0 P04050 0          UJP     *-2
04053  77200002 77 0  00002 2          EXS     2,0
04054  01004053 01 0 P04053 0          UJP     *-1
04055  77100002 77 0  00002 1          SEL     2,0
04056  01004055 01 0 P04055 0          UJP     *-1
04057  77100002 77 0  00002 1          SEL     2,0
04060  01004057 01 0 P04057 0          UJP     *-1
```

```
04061  01404016 01 1 P04016 0          UJP,I    PRTT                                                  02140
                                                                                                       02141
04062          60606060        FORT    BCD      12,    FIRST TIME-                    LAST TIME-      02142
04063          26315162
04064          63606331
04065          44254060
04066          60606060
04067          60606060
04070          60606060
04071          60606060
04072          60606060
04073          60432162
04074          63606331
04075          44254060
04076          60606060                BCD      05,                                                   02143
04077          60606060
04100          60606060
04101          60606060
04102          60606060
                                                                                                       02144
04103  01004103 01 0 P04103 0  BCDOCT  UJP      *                                                     02145
04104  47104117 47 0 P04117 1          STI      BCD2,1                                                02146
04105  21011721 21 0 P11721 0          LDQ      =H                                                    02147
04106  41004121 41 0 P04121 0          STQ      TEMP                                                  02148
04107  14100003 14 0  00003 1          ENI      3,1       SET UP LOOP FOR 4 DIGITS                    02149
04110  13000030 13 0  00030 0  BLOOP   SHAQ     2I                                                    02150
04111  14600000 14 1  00000 2          ENA      0                                                     02151
04112  51011722 51 0 P11722 0          DVA      =D10                                                  02152
04113  43420504 43 1 P04121 0          SQCH     TEMP,1                                                02153
04114  03004116 03 0 P04116 0          AZJ,EQ   BCD1       EXIT IF ZERO                              02154
04115  02504110 02 1 P04110 1          IJD      BLOOP,1                                               02155
04116  20004121 20 0 P04121 0  BCD1    LDA      TEMP      CONVERTE NUMBER TO A                        02156
04117  14177777 14 0  77777 1  BCD2    ENI      **,1                                                  02157
04120  01404103 01 1 P04103 0          UJP,I    BCDOCT     EXIT                                       02158
04121          00000000        TEMP    OCT      0                                                     02159
```

.. ROUTINE TO FORMAT ENGINEERING HOUSEKEEPING PI TAPES ..

```
04122  01004211 01 0 P04211 0          UJP     ENGRI
04123          25452751                BCD     2,ENGRNGAL
04124          45272143
04125          00002070                DEC     1080
04126  00002100 00 0 C02100 0  ENGRB2  00      BUF1*2100B
04127  00000000 00 0 C00000 0  ENGRX   00      BUF1
04130  00000000 00 0 C00000 0  ENGRB1  00      BUF1
04131  00001764 00 0 P01764 0  ENGRF   00      WAF
04132  01004132 01 0 P04132 0  ENGR    UJP     *
04133  54204127 54 0 P04127 2          LDI     ENGRX,2
04134  54403067 54 0 P03067 3          LDI     DATADR,3
04135  25403066 25 1 P03066 0          LDAQ,I  TIMADR
04136  13000014 13 0  00014 0          SHAQ    14
04137  40200000 40 0  00000 2          STA     0,2
04140  13000014 13 0  00014 0          SHAQ    14
04141  21001762 21 0 P01762 0          LDQ     BERX
04142  13000014 13 0  00014 0          SHAQ    12
04143  40200001 40 0  00001 2          STA     1,2
04144  14600000 14 1  00000 2          ENA     0
04145  40200002 40 0  00002 2          STA     2,2
04146  25300010 25 0  00010 3          LDAQ    8,3
04147  40200003 40 0  00003 2          STA     3,2
04150  13000014 13 0  00014 0          SHAQ    14
04151  21300012 21 0  00012 3          LDQ     10,3
04152  13000014 13 0  00014 0          SHAQ    12
04153  40200004 40 0  00004 2          STA     4,2
04154  14600000 14 1  00000 2          ENA     0
04155  13000006 13 0  00006 0  ENGRM   SHAQ    6          IS REPLACED BY A (LDQ   0,3 )
04156  13000006 13 0  00006 0          SHAQ    6           AND (SHAQ   12 )
                                                          FOR APOLLO 13 AND 14.
04157  12000014 12 0  00014 0          SHA     12
04160  40200005 40 0  00005 2          STA     5,2
04161  15200006 15 0  00006 2          INI     6,2
04162  47204127 47 0 P04127 2          STI     ENGRX,2
04163  53200000 53 0  00000 2          TIA     2
04164  14700000 14 1  00000 3  ENGRC   ENQ     0
04165  03604211 03 1 P04211 2  ENGRW   AQJ,GE  ENGRI      SET TO ENGRI,ENGRJ,ENGRH BY PROGRAM
04166  01404132 01 1 P04132 0          UJP,I   ENGR
04167  14600001 14 1  00001 2  ENGRJ   ENA     1
04170  40404131 40 1 P04131 0          STA,I   ENGRF
04171  14604200 14 1 P04200 2          ENA     ENGRH
04172  44004165 44 0 P04165 0          SWA     ENGRW
04173  20004126 20 0 P04126 0          LDA     ENGRB2
04174  40004127 40 0 P04127 0          STA     ENGRX
04175  15602070 15 1  02070 2          INA     1080
04176  44004164 44 0 P04164 0          SWA     ENGRC
04177  01404132 01 1 P04132 0          UJP,I   ENGR
04200  14600002 14 1  00002 2  ENGRH   ENA     2
04201  40404131 40 1 P04131 0          STA,I   ENGRF
04202  14604167 14 1 P04167 2          ENA     ENGRJ
04203  44004165 44 0 P04165 0          SWA     ENGRW
04204  20004130 20 0 P04130 0          LDA     ENGRB1
04205  40004127 40 0 P04127 0          STA     ENGRX
```

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04206  15602070 15 1  02070 2          INA     1980                                    02214
04207  44004164 44 0 P04164 0          SWA     ENGRC                                   02215
04210  01404132 01 1 P04132 0          UJP,I   ENGR                                    02216
04211  20004130 29 0 P04130 0  ENGRI   LDA     ENGRBI                                  02217
04212  15602070 15 1  02070 2          INA     1980                                    02218
04213  44004164 44 0 P04164 0          SWA     ENGRC                                   02219
04214  14004167 14 1 P04167 2          ENA     ENGRJ                                   02220
04215  44004165 44 0 P04165 0          SWA     ENGRW                                   02221
04216  14600000 14 1  00000 2          ENA     0                                       02222
04217  14700004 14 1  00004 3          ENQ     4          HOW MANY DAYS TO PROCESS     02223
04220  45404131 45 1 P04131 0          STAQ,I  ENGRF                                   02224
04221  01404132 01 1 P04132 0          UJP,I   ENGR                                    02225
                                                                                       02226
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04222  01004373 01 0 P04373 0          UJP     LSMI
04223          44212725                BCD      2,MAGEXPAL
04224          67472143
04225          00001243                DEC      675
04226  00002100 00 0 C02100 0  LSMB2   00      BUF1+2100B
04227  00000000 00 0 C00000 0  LSMX    00      BUF1
04230  00000000 00 0 C00000 0  LSMB1   00      BUF1
04231  00001764 00 0 P01764 0  LSMF    00      WAF
04232  01004232 01 0 P04232 0  LSM     UJP     *
04233  54303067 54 0 P03067 3          LDI     DATADR,3
04234  54204227 54 0 P04227 2          LDI     LSMX,2

04235  01004236 01 0 P04236 0  LSMFLIP UJP     *+1
04236  14604277 14 1 P04277 2          ENA     LSMFLOP
04237  44004235 44 0 P04235 0          SWA     LSMFLIP
04240  25403066 25 1 P03066 0          LDAQ,I  TIMADR
04241  13000014 13 0  00014 0          SHAQ    12
04242  40200000 40 0  00000 2          STA     0,2
04243  13000014 13 0  00014 0          SHAQ    12
04244  21001762 21 0 P01762 0          LDQ     BERA
04245  13000014 13 0  00014 0          SHAQ    12
04246  21001763 21 0 P01763 0          LDQ     FRAME
04247  04700001 04 1  00001 3          QSE     1
04250  01004252 01 0 P04252 0          UJP     *+2
04251  15600001 15 1  00001 2          TNA     1
04252  40200001 40 0  00001 2          STA     1,2
04253  12400021 12 1  00021 0          SHQ     17
04254  41200002 41 0  00002 2          STQ     2,2
04255  21300012 21 0  00012 3          LDQ     10,3
04256  41200003 41 0  00003 2          STQ     3,2

04257  25300000 25 0  00000 3          LDAQ    0,3
04260  12000014 12 0  00014 0          SHA     12
04261  12400014 12 1  00014 0          SHQ     12
04262  13000014 13 0  00014 0          SHAQ    12
04263  40200004 40 0  00004 2          STA     4,2
04264  20300002 20 0  00002 3          LDA     2,3
04265  40200005 40 0  00005 2          STA     5,2
04266  20300005 20 0  00005 3          LDA     5,3
04267  40200006 40 0  00006 2          STA     6,2
04270  20300006 20 0  00006 3          LDA     6,3
04271  17470000 17 1  70000 0          ANA,S   70000B
04272  40200007 40 0  00007 2          STA     7,2
04273  15200010 15 0  00010 2          INI     8,2
04274  47204227 47 0 P04227 2          STI     LSMX,2
04275  01404232 01 1 P04232 0          UJP,I   LSM
04276          00000000        LSMTEMP OCT     0

04277  14604236 14 1 P04236 2  LSMFLOP ENA     LSMFLIP+1
04300  44004235 44 0 P04235 0          SWA     LSMFLIP
04301  25403066 25 1 P03066 0          LDAQ,I  TIMADR
04302  41200000 41 0  00000 2          STQ     0,2
04303  21277776 21 0  77776 2          LDQ     -1,2
```

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04304  13000014 13 0  00014 0          SHAQ    14                                  02281
04305  12000014 12 0  00014 0          SHA     12                                  02282
04306  40277776 40 0  77776 2          STA     -1,2                                02283
04307  20001762 20 0 P01762 0          LDA     BERA                                02284
04310  21001763 21 0 P01763 0          LDQ     FRAME                               02285
04311  04700001 04 1  00001 3          QSE     1                                   02286
04312  01004314 01 0 P04314 0          UJP     *+2                                 02287
04313  15610000 15 1  10000 2          INA     100008                              02288
04314  12000014 12 0  00014 0          SHA     12                                  02289
04315  12400021 12 1  00021 0          SHQ     17                                  02290
04316  13000014 13 0  00014 0          SHAQ    14                                  02291
04317  40200001 40 0  00001 2          STA     1,2                                 02292
04320  14600000 14 1  00000 2          ENA     0                                   02293
04321  21300012 21 0  00012 3          LDQ     10,3                                02294
04322  13000014 13 0  00014 0          SHAQ    12                                  02295
04323  40200002 40 0  00002 2          STA     2,2                                 02296
04324  13000014 13 0  00014 0          SHAQ    14                                  02297
04325  21300000 21 0  00000 3          LDQ     0,3                                 02298
04326  13000014 13 0  00014 0          SHAQ    14                                  02299
04327  40200003 40 0  00003 2          STA     3,2                                 02300
04330  25300001 25 0  00001 3          LDAQ    1,3                                 02301
04331  13000014 13 0  00014 0          SHAQ    14                                  02302
04332  40200004 40 0  00004 2          STA     4,2                                 02303
04333  13000014 13 0  00014 0          SHAQ    12                                  02304
04334  21300005 21 0  00005 3          LDQ     5,3                                 02305
04335  13000014 13 0  00014 0          SHAQ    14                                  02306
04336  40200005 40 0  00005 2          STA     5,2                                 02307
04337  13000014 13 0  00014 0          SHAQ    12                                  02308
04340  21300006 21 0  00006 3          LDQ     6,3                                 02309
04341  13000014 13 0  00014 0          SHAQ    14                                  02310
04342  40200006 40 0  00006 2          STA     6,2                                 02311
04343  15200007 15 0  00007 2          INI     7,2                                 02312
04344  47204227 47 0 P04227 2          STI     LSMX,2                              02313
04345  53200000 53 0  00000 2          TIA     2                                   02314
04346  14700000 14 1  00000 3  LSMC    ENQ     0          SET TO BUFFER LENGTH     02315
04347  03604373 03 1 P04373 2  LSMW    AWJ,GE  LSMI       SET TO LSMI,LSMJ,OR LSMH BY PROGRAM.  02316
04350  01404232 01 1 P04232 0          UJP,I   LSM                                 02317
04351  14600001 14 1  00001 2  LSMJ    ENA     1                                   02318
04352  40404231 40 1 P04231 0          STA,I   LSMF                                02319
04353  14604362 14 1 P04362 2          ENA     LSMH                                02320
04354  44004347 44 0 P04347 0          SWA     LSMW                                02321
04355  20004226 20 0 P04226 0          LDA     LSMB2                               02322
04356  40004227 40 0 P04227 0          STA     LSMA                                02323
04357  15601243 15 1  01243 2          INA     675                                 02324
04360  44004346 44 0 P04346 0          SWA     LSMC                                02325
04361  01404232 01 1 P04232 0          UJP,I   LSM                                 02326
04362  14600002 14 1  00002 2  LSMH    ENA     2                                   02327
04363  40404231 40 1 P04231 0          STA,I   LSMF                                02328
04364  14604351 14 1 P04351 2          ENA     LSMJ                                02329
04365  44004347 44 0 P04347 0          SWA     LSMW                                02330
04366  20004230 20 0 P04230 0          LDA     LSMB1                               02331
04367  40004227 40 0 P04227 0          STA     LSMA                                02332
04370  15601243 15 1  01243 2          INA     675                                 02333
04371  44004346 44 0 P04346 0          SWA     LSMC                                02334
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04372  01404232 01 1 P04232 0          UJP,I    LSM                                  02335
04373  20004230 20 0 P04230 0  LSMI    LDA      LSMB1                                02336
04374  15601243 15 1  01243 2          INA      675                                  02337
04375  44004346 44 0 P04346 0          SWA      LSMC                                 02338
04376  14604351 14 1 P04351 2          ENA      LSMJ                                 02339
04377  44004347 44 0 P04347 0          SWA      LSMW                                 02340
04400  14600000 14 1  00000 2          ENA      0                                    02341
04401  14700003 14 1  00003 3          ENQ      3          HOW MANY DAYS TO PROCESS  02342
04402  45404231 45 1 P04231 0          STAQ,1   LSMF                                 02343
04403  01404232 01 1 P04232 0          UJP,I    LSM                                  02344
                                                                                     02345
                                                                                     02346
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                                                  .. ROUTINE TO FORMAT SUPRATERMAL ION DETECTOR PI TAPE ..
04404  01004503 01 0 P04503 0              UJP     SIDEI
04405          62312425                    BCD      2,SIDE  AL
04406          60602143
04407          00001452                    DEC      810
04410  00002100 00 0 C02100 0  SIDEB2      00      BUF1+2100B
04411  00000000 00 0 C00000 0  SIDEX       00      BUF1
04412  00000000 00 0 C00000 0  SIDEB1      00      BUF1
04413  00001764 00 0 P01764 0  SIDEF       00      WAF
04414  01004414 01 0 P04414 0  SIDE        UJP     *
04415  54303067 54 0 P03067 3              LDI     DATADR,3
04416  54204411 54 0 P04411 2              LDI     SIDEX,2
04417  25403066 25 1 P03066 0              LDAQ,I  TIMADR
04420  13000014 13 0  00014 0              SHAQ    12
04421  40200000 40 0  00000 2              STA     0,2
04422  13000014 13 0  00014 0              SHAQ    12
04423  21001762 21 0 P01762 0              LDQ     BERX
04424  13000014 13 0  00014 0              SHAQ    12
04425  40200001 40 0  00001 2              STA     1,2
04426  14600000 14 1  00000 2              ENA     0
04427  40200002 40 0  00002 2              STA     2,2
04430  40200010 40 0  00010 2              STA     8,2
04431  20300010 20 0  00010 3              LDA     8,3
04432  40200003 40 0  00003 2              STA     3,2
04433  20300011 20 0  00011 3              LDA     9,3
04434  12000014 12 0  00014 0              SHA     12
04435  21300001 21 0  00001 3              LDQ     1,3
04436  13000014 13 0  00014 0              SHAQ    12
04437  40200004 40 0  00004 2              STA     4,2
04440  20300003 20 0  00003 3              LDA     3,3
04441  21300012 21 0  00012 3              LDQ     10,3
04442  13000014 13 0  00014 0              SHAQ    12
04443  40200005 40 0  00005 2              STA     5,2
04444  20300004 20 0  00004 3              LDA     4,3
04445  14004445 14 0 P04445 0  SIDEM       NOP     *          *   CHANGES FOR APOLLO 14 - (LDQ   0,3)
04446  13000014 13 0  00014 0              SHAQ    12
04447  12000014 12 0  00014 0              SHA     12
04450  40200006 40 0  00006 2              STA     6,2
04451  20300007 20 0  00007 3              LDA     7,3
04452  40200007 40 0  00007 2              STA     7,2
04453  15200011 15 0  00011 2              INI     9,2
04454  47204411 47 0 P04411 2              STI     SIDEX,2
04455  53200000 53 0  00000 2              TIA     2
04456  14700000 14 1  00000 3  SIDEC       ENQ     0          * SET TO BUFFER LENGTH
04457  03604503 03 1 P04503 2  SIDEW       AQJ,GE  SIDEI      * SET TO SIDEI,SIDEJ,SIDEH BY PROGRAM
04460  01404414 01 1 P04414 0              UJP,I   SIDE
04461  14600001 14 1  00001 2  SIDEJ       ENA     1
04462  40404413 40 1 P04413 0              STA,I   SIDEF
04463  14604472 14 1 P04472 2              ENA     SIDEH
04464  44004457 44 0 P04457 0              SWA     SIDEW
04465  20004410 20 0 P04410 0              LDA     SIDEB2
04466  40004411 40 0 P04411 0              STA     SIDEX
04467  15601452 15 1  01452 2              INA     810
04470  44004456 44 0 P04456 0              SWA     SIDEC
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04471  01404414 01 1 P04414 0          UJP,I    SIDE                                  02401
04472  14600002 14 1  00002 2  SIDEH   ENA      2                                     02402
04473  40404413 40 1 P04413 0          STA,I    SIDEF                                 02403
04474  14604461 14 1 P04461 2          ENA      SIDEJ                                 02404
04475  44004457 44 0 P04457 0          SWA      SIDEW                                 02405
04476  20004412 20 0 P04412 0          LDA      SIDEB1                                02406
04477  40004411 40 0 P04411 0          STA      SIDEX                                 02407
04500  15601452 15 1  01452 2          INA      810                                   02408
04501  44004456 44 0 P04456 0          SWA      SIDEC                                 02409
04502  01404414 01 1 P04414 0          UJP,I    SIDE                                  02410
04503  20004412 20 0 P04412 0  SIDEI   LDA      SIDEB1                                02411
04504  15601452 15 1  01452 2          INA      810                                   02412
04505  44004456 44 0 P04456 0          SWA      SIDEC                                 02413
04506  20004412 20 0 P04412 0          LDA      SIDEB1                                02414
04507  15602100 15 1  02100 2          INA      2100B                                 02415
04510  40004410 40 0 P04410 0          STA      SIDEB2                                02416
04511  14604461 14 1 P04461 2          ENA      SIDEJ                                 02417
04512  44004457 44 0 P04457 0          SWA      SIDEW                                 02418
04513  14600000 14 1  00000 2          ENA      0                                     02419
04514  14700003 14 1  00003 3          ENQ      3          HOW MANY DAYS TO PROCESS   02420
04515  45404413 45 1 P04413 0          STAQ,I   SIDEF                                 02421
04516  01404414 01 1 P04414 0          UJP,I    SIDE                                  02422
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04517  01004662 01 0 P04662 0          UJP     SWSI
04520          62464366                BCD      2,SOLWDSAL
04521          24622143
04522          00001224                DEC      660
04523  00002100 00 0 C02100 0  SWSB2   00      BUF1+2100B
04524  00000000 00 0 C00000 0  SWSX    00      BUF1
04525  00000000 00 0 C00000 0  SWSB1   00      BUF1
04526  00001764 00 0 P01764 0  SWSF    00      WAF
04527  01004527 01 0 P04527 0  SWS     UJP     *
04530  54303067 54 0 P03067 3          LDI     DATADR,3
04531  54204524 54 0 P04524 2          LDI     SWSX,2
04532  01004533 01 0 P04533 0  SWSFLIP UJP     *+1
04533  14604573 14 1 P04573 2          ENA     SWSFLOP
04534  44004532 44 0 P04532 0          SWA     SWSFLIP
04535  25403066 25 1 P03066 0          LDAQ,I  TIMADR
04536  13000014 13 0  00014 0          SHAQ    12
04537  40200000 40 0  00000 2          STA     0,2
04540  13000014 13 0  00014 0          SHAQ    12
04541  21001762 21 0 P01762 0          LDQ     BERX
04542  13000014 13 0  00014 0          SHAQ    12
04543  40200001 40 0  00001 2          STA     1,2
04544  14600000 14 1  00000 2          ENA     0
04545  40200002 40 0  00002 2          STA     2,2
04546  25300010 25 0  00010 3          LDAQ    8,3
04547  40200003 40 0  00003 2          STA     3,2
04550  20300012 20 0  00012 3          LDA     10,3
04551  12400014 12 1  00014 0          SHQ     12
04552  13000014 13 0  00014 0          SHAQ    12
04553  41200004 41 0  00004 2          STQ     4,2
04554  20300000 20 0  00000 3          LDA     0,3
04555  21300003 21 0  00003 3          LDQ     3,3
04556  13000014 13 0  00014 0          SHAQ    12
04557  40200005 40 0  00005 2          STA     5,2
04560  20300012 20 0  00012 3          LDA     10,3
04561  21300004 21 0  00004 3          LDQ     4,3
04562  13000014 13 0  00014 0          SHAQ    12
04563  40200006 40 0  00006 2          STA     6,2
04564  20300006 20 0  00006 3          LDA     6,3
04565  12000014 12 0  00014 0          SHA     12
04566  17470000 17 1  70000 0          ANA,S   70000B
04567  40200007 40 0  00007 2          STA     7,2
04570  15200010 15 0  00010 2          INI     8,2
04571  47204524 47 0 P04524 2          STI     SWSX,2
04572  01404527 01 1 P04527 0          UJP,I   SWS
04573  14604533 14 1 P04533 2  SWSFLOP ENA     SWSFLIP+1
04574  44004532 44 0 P04532 0          SWA     SWSFLIP
04575  25403066 25 1 P03066 0          LDAQ,I  TIMADR
04576  41200000 41 0  00000 2          STQ     0,2
04577  21277776 21 0  77776 2          LDQ     -1,2
04600  13000014 13 0  00014 0          SHAQ    12
04601  12000014 12 0  00014 0          SHA     12
04602  40277776 40 0  77776 2          STA     -1,2
04603  20001762 20 0 P01762 0          LDA     BERX
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04604  40200001 40 0  00001 2          STA     1,2
04605  21300010 21 0  00010 3          LDQ     8,3
04606  13000014 13 0  00014 0          SHAQ    12
04607  40200002 40 0  00002 2          STA     2,2
04610  13000014 13 0  00014 0          SHAQ    12
04611  21300011 21 0  00011 3          LDQ     9,3
04612  13000014 13 0  00014 0          SHAQ    12
04613  40200003 40 0  00003 2          STA     3,2
04614  20300000 20 0  00000 3          LDA     0,3
04615  21300012 21 0  00012 3          LDQ     10,3
04616  13000014 13 0  00014 0          SHAQ    12
04617  12000014 12 0  00014 0          SHA     12
04620  40200004 40 0  00004 2          STA     4,2
04621  20300003 20 0  00003 3          LDA     3,3
04622  12000014 12 0  00014 0          SHA     12
04623  13000014 13 0  00014 0          SHAQ    12
04624  40200005 40 0  00005 2          STA     5,2
04625  20300004 20 0  00004 3          LDA     4,3
04626  21300006 21 0  00006 3          LDQ     6,3
04627  13000014 13 0  00014 0          SHAQ    12
04630  12400014 12 1  00014 0          SHQ     12
04631  41200006 41 0  00006 2          STQ     6,2
04632  15200007 15 0  00007 2          INI     7,2
04633  47204524 47 0 P04524 2          STI     SWSX,2
04634  53200000 53 0  00000 2          TIA     2
04635  14700000 14 1  00000 3  SWSC    ENQ     0          SET TO BUFFER LENGHT
04636  03604662 03 1 P04662 2  SWSW    AQJ,GE  SWSI       SET TO SWSI,SWSJ,OR SWSH BY PROGRAM
04637  01404527 01 1 P04527 0          UJP,I   SWS
04640  14600001 14 1  00001 2  SWSJ    ENA     1
04641  40404526 40 1 P04526 0          STA,I   SWSF
04642  14604651 14 1 P04651 2          ENA     SWSH
04643  44004636 44 0 P04636 0          SWA     SWSW
04644  20004523 20 0 P04523 0          LDA     SWSB2
04645  40004524 40 0 P04524 0          STA     SWSX
04646  15601224 15 1  01224 2          INA     600
04647  44004635 44 0 P04635 0          SWA     SWSC
04650  01404527 01 1 P04527 0          UJP,I   SWS
04651  14600002 14 1  00002 2  SWSH    ENA     2
04652  40404526 40 1 P04526 0          STA,I   SWSF
04653  14604640 14 1 P04640 2          ENA     SWSJ
04654  44004636 44 0 P04636 0          SWA     SWSW
04655  20004525 20 0 P04525 0          LDA     SWSB1
04656  40004524 40 0 P04524 0          STA     SWSX
04657  15601224 15 1  01224 2          INA     600
04660  44004635 44 0 P04635 0          SWA     SWSC
04661  01404527 01 1 P04527 0          UJP,I   SWS
04662  20004525 20 0 P04525 0  SWSI    LDA     SWSB1
04663  15601224 15 1  01224 2          INA     600
04664  44004635 44 0 P04635 0          SWA     SWSC
04665  14604640 14 1 P04640 2          ENA     SWSJ
04666  44004636 44 0 P04636 0          SWA     SWSW
04667  14600000 14 1  00000 2          ENA     0
04670  14700003 14 1  00003 3          ENQ     3          HOW MANY DAYS TO PROCESS
04671  45404526 45 1 P04526 0          STAQ,I  SWSF
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02531
02532
02533

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                                                  .. ROUTINE TO FORMAT HEAT FLOW PI TAPES ..
04673  01005026 01 0 P05026 0                UJP     HFLI
04674          30252163                      BCD     2,HEATFLAL
04675          26432143
04676          00001452                      DEC     810
04677  00002100 00 0 C02100 0   HFLB2        00      BUF1+2100B
04700  00000000 00 0 C00000 0   HFLX         00      BUF1
04701  00000000 00 0 C00000 0   HFLB1        00      BUF1
04702  00001764 00 0 P01764 0   HFLF         00      WAF
04703  01004703 01 0 P04703 0   HFL          UJP     *
04704  54303067 54 0 P03067 3                LDI     DATADR,3
04705  54204700 54 0 P04700 2                LDI     HFLX,2
04706  20001763 20 0 P01763 0                LDA     FRAME
04707  05600020 05 1  00020 2                ASG     16
04710  01004727 01 0 P04727 0   HFLM         UJP     HFLK     WILL CHANGE TO HFLK-1 FOR 13,15
04711  14200000 14 0  00000 2                ENI     0,2      ..
04712  21204720 21 0 P04720 2                LDQ     HFLFRM,2  ...CHECK FOR VALID FRAMES
04713  03404732 03 1 P04732 0                AQJ,EQ  HFLL      .   (29,45,55,57,74,75)
04714  10200005 10 0  00005 2                ISI     5,2
04715  01004712 01 0 P04712 0                UJP     *-3      ..
04716  01404703 01 1 P04703 0                UJP,I   HFL

04717          00000000         HFLTEMP      OCT     0
04720          00000035         HFLFRM       DEC     29
04721          00000055                      DEC     45
04722          00000067                      DEC     55
04723          00000071                      DEC     57
04724          00000112                      DEC     74
04725          00000113                      DEC     75

04726  14004726 14 0 P04726 0                NOP     *        *     PROCESS HFL ALSEP WORD (FRAMES 0-15)
04727  21300003 21 0  00003 3   HFLK         LDQ     3,3      **CHANGES FOR APOLLO 13- (LDQ 2,3),(SHQ 12)
04730  13000014 13 0  00014 0                SHAQ    12                15- (LDQ 9,3),(SHQ 12)
04731  01404734 01 1 P04734 0                UJP,I   HFLFLIP

04732  54204700 54 0 P04700 2   HFLL         LDI     HFLX,2
04733  12000014 12 0  00014 0                SHA     12
04734  01004735 01 0 P04735 0   HFLFLIP      UJP     *+1
04735  40200003 40 0  00003 2                STA     3,2
04736  14604757 14 1 P04757 2                ENA     HFLFLOP
04737  44004734 44 0 P04734 0                SWA     HFLFLIP
04740  25403066 25 1 P03066 0                LDAQ,I  TIMADR
04741  13000014 13 0  00014 0                SHAQ    12
04742  40200000 40 0  00000 2                STA     0,2
04743  13000014 13 0  00014 0                SHAQ    12
04744  21001762 21 0 P01762 0                LDQ     BERX
04745  13000014 13 0  00014 0                SHAQ    12
04746  40200001 40 0  00001 2                STA     1,2
04747  14600000 14 1  00000 2                ENA     0
04750  40200002 40 0  00002 2   HFLN         STA     2,2      ** CHANGE FOR APOLLO 17- (UJP HFLGI)
04751  20300012 20 0  00012 3                LDA     10,3
04752  17470000 17 1  70000 0                ANA,S   70000B
04753  40200004 40 0  00004 2                STA     4,2
04754  15200005 15 0  00005 2                INI     5,2
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04755  47204700 47 0 P04700 2          STI     HFLX'2
04756  01404703 01 1 P04703 0          UJP,I   HFL
04757  21300012 21 0  00012 3  HFLFLOP LDQ     10,3
04760  13077763 13 0  77763 0          SHAQ    -12
04761  40200002 40 0  00002 2          STA     2,2
04762  41200003 41 0  00003 2          STQ     3,2
04763  14604735 14 1 P04735 2          ENA     HFLFLIP+1
04764  44004734 44 0 P04734 0          SWA     HFLFLIP
04765  20277776 20 0  77776 2          LDA     -1,2
04766  21403066 21 1 P03066 0          LDQ,I   TIMADR
04767  13000014 13 0  00014 0          SHAQ    12
04770  12400014 12 1  00014 0          SHQ     12
04771  41277776 41 0  77776 2          STQ     -1,2
04772  25403066 25 1 P03066 0          LDAQ,I  TIMADR
04773  41200000 41 0  00000 2          STQ     0,2
04774  20001762 20 0 P01762 0          LDA     BERX
04775  40200001 40 0  00001 2  HFLP    STA     1,2        ** CHANGE FOR APOLLO 17- (UJP HFLGO)
04776  15200004 15 0  00004 2          INI     4,2
04777  47204700 47 0 P04700 2          STI     HFLX,2
05000  53200000 53 0  00000 2          TIA     2
05001  14700000 14 1  00000 3  HFLC    ENQ     0          SET TO BUFFER LENGTH
05002  03605026 03 1 P05026 2  HFLW    AQJ,GE  HFLI       SET TO LSMI,LSMJ,OR LSMH BY PROGRAM
05003  01404703 01 1 P04703 0          UJP,I   HFL
05004  14600001 14 1  00001 2  HFLJ    ENA     1
05005  40404702 40 1 P04702 0          STA,I   HFLF
05006  14605015 14 1 P05015 2          ENA     HFLH
05007  44005002 44 0 P05002 0          SWA     HFLW
05010  20004677 20 0 P04677 0          LDA     HFLB2
05011  40004700 40 0 P04700 0          STA     HFLX
05012  15601452 15 1  01452 2          INA     810
05013  44005001 44 0 P05001 0          SWA     HFLC
05014  01404703 01 1 P04703 0          UJP,I   HFL
05015  14600002 14 1  00002 2  HFLH    ENA     2
05016  40404702 40 1 P04702 0          STA,I   HFLF
05017  14605004 14 1 P05004 2          ENA     HFLJ
05020  44005002 44 0 P05002 0          SWA     HFLW
05021  20004701 20 0 P04701 0          LDA     HFLB1
05022  40004700 40 0 P04700 0          STA     HFLX
05023  15601452 15 1  01452 2          INA     810
05024  44005001 44 0 P05001 0          SWA     HFLC
05025  01404703 01 1 P04703 0          UJP,I   HFL
05026  20004701 20 0 P04701 0  HFLI    LDA     HFLB1
05027  15601452 15 1  01452 2          INA     810
05030  44005001 44 0 P05001 0          SWA     HFLC
05031  14605004 14 1 P05004 2          ENA     HFLJ
05032  44005002 44 0 P05002 0          SWA     HFLW
05033  14600000 14 1  00000 2          ENA     0
05034  14700004 14 1  00004 3          ENQ     4          HOW MANY DAYS TO PROCESS
05035  45404702 45 1 P04702 0          STAQ,I  HFLF
05036  01404703 01 1 P04703 0          UJP,I   HFL

05037  21300000 21 0  00000 3  HFLGI   LDQ     0,3                  * FOR APOLLO 17-
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05040  13000014 13 0  00014 0          SHAQ    12
05041  41200002 41 0  00002 2          STQ     2,2
05042  01004751 01 0 P04751 0          UJP     HELN+1

05043  21300000 21 0  00000 3  HFLGO   LDQ     0,3        * FOR APOLLO 17
05044  13000014 13 0  00014 0          SHAQ    12
05045  12400014 12 1  00014 0          SHQ     12
05046  41200001 41 0  00001 2          STQ     1,2
05047  01004776 01 0 P04776 0          UJP     HELP+1
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05050  01005431 01 0 P05431 0          UJP     CCGI                                          02653
05051          23232725                BCD     2,CCGEXPAL                                    02654
05052          67472143
05053          00000625                DEC     405                                           02655
05054  00002100 00 0 C02100 0  CCGEB2   00      BUF1+2100B                                    02656
05055  00000000 00 0 C00000 0  CCGEX    00      BUF1                                          02657
05056  00000000 00 0 C00000 0  CCGEB1   00      BUF1                                          02658
05057  00001764 00 0 P01764 0  CCGEF    00      WAF                                           02659
05060  01005060 01 0 P05060 0  CCGE     UJP     *                                             02660
05061  54303067 54 0 P03067 3          LDI     DATADR,3                                      02661
05062  54205055 54 0 P05055 2          LDI     CCGEX,2                                       02662
05063  47105445 47 0 P05445 1          STI     CCGINT,1                                      02663
05064  01005065 01 0 P05065 0  CCGFLIP  UJP     *+1                                           02664
05065  20001763 20 0 P01763 0          LDA     FRAME                                         02665
05066  17600001 17 1  00001 2          ANA     1                                             02666
05067  04600000 04 1  00000 2          ASE     0                                             02667
05070  01005137 01 0 P05137 0          UJP     CCGINO      (ODD FRAME)                       02668
                                                                                             02669
05071  40005447 40 0 P05447 0          STA     CCGMF      MODE FLAG=0 (EVEN FRAME)           02670
05072  20001763 20 0 P01763 0          LDA     FRAME                                         02671
05073  40005451 40 0 P05451 0          STA     CCGFR                                         02672
05074  20300001 20 0  00001 3          LDA     1,3                                           02673
05075  12000012 12 0  00012 0          SHA     10                                            02674
05076  17400177 17 1  00177 0          ANA,S   177B                                          02675
05077  14100032 14 0  00032 1          ENI     26,1                                          02676
05100  14500177 14 1  00177 1          ENQ,S   177B                                          02677
05101  06105515 06 0 P05515 1          MEQ     CCGMSF,1                                      02678
05102  01005442 01 0 P05442 0  CCGIND   UJP     CCGOUT      ** CHANGED TO CCGINA AFTER INITAL.  02679
                                                          - ACCEPTABLE MODE SIDE FRAME FOUND.  02680
05103  14700002 14 1  00002 3          ENQ     2                                             02681
05104  41005447 41 0 P05447 0          STQ     CCGMF                                         02682
05105  54105450 54 0 P05450 1  CCGINA   LDI     CCGCNT,1                                      02683
05106  14577777 14 1  77777 1          ENQ,S   77777B                                        02684
05107  06105547 06 0 P05547 1          MEQ     CCGCSF,1                                      02685
05110  01005442 01 0 P05442 0          UJP     CCGOUT      NOT A CCGE SIDE FRAME             02686
05111  14600001 14 1  00001 2          ENA     1                                             02687
05112  34005447 34 0 P05447 0          RAD     CCGMF                                         02688
05113  25403066 25 1 P03066 0          LDAQ,I  TIMADR                                        02689
05114  12000014 13 0  00014 0          SHAQ    12                                            02690
05115  40200000 40 0  00000 2          STA     0,2                                           02691
05116  13000014 13 0  00014 0          SHAQ    12                                            02692
05117  12000004 12 0  00004 0          SHA     4                                             02693
05120  13000006 13 0  00006 0          SHAQ    6                                             02694
05121  21001762 21 0 P01762 0          LDQ     BERX                                          02695
05122  12000016 12 0  00016 0          SHA     14                                            02696
05123  13000004 13 0  00004 0          SHAQ    4                                             02697
05124  12400006 12 1  00006 0          SHQ     6                                             02698
05125  12000006 12 0  00006 0          SHA     6                                             02699
05126  13000002 13 0  00002 0          SHAQ    2                                             02700
05127  40200001 40 0  00001 2          STA     1,2                                           02701
05130  20300001 20 0  00001 3          LDA     1,3                                           02702
05131  21300003 21 0  00003 3          LDQ     3,3                                           02703
05132  13000014 13 0  00014 0          SHAQ    12                                            02704
05133  12400014 12 1  00014 0          SHQ     12                                            02705
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05134  41200003 41 0  00003 2          STQ     3,2
                                                  END OF EVEN FRAME,FIRST HALF OF OUTPUT FRAME.
05135  54105445 54 0 P05445 1          LDI     CCGINT,1
05136  01405060 01 1 P05060 0          UJP,I   CCGE

05137  20001763 20 0 P01763 0  CCGINO  LDA     FRAME
05140  21005451 21 0 P05451 0          LDQ     CCGFR
05141  15700001 15 1  00001 3          INQ     I
05142  03405146 03 1 P05146 0          AQJ,EQ  *+4          CONSECTIVE FRAMES
05143  14600000 14 1  00000 2          ENA     0
05144  40005447 40 0 P05447 0          STA     CCGMF
05145  01005442 01 0 P05442 0          UJP     CCGOUT

05146  20005447 20 0 P05447 0          LDA     CCGMF
05147  03005442 03 0 P05442 0          AZJ,EQ  CCGOUT     NEITHER A MODE OR A CCGE FRAME
05150  05600002 05 1  00002 2          ASG     2
05151  01005442 01 0 P05442 0  CCGINC  UJP     CCGOUT     CHANGED TO CCGINB AFTER INITIAL
05152  20300001 20 0  00001 3          LDA     1,3
05153  12000012 12 0  00012 0          SHA     10
05154  17600077 17 1  00077 2          ANA     77B
05155  05600020 05 1  00020 2          ASG     16
05156  01005160 01 0 P05160 0          UJP     *+2
05157  01005442 01 0 P05442 0  CCGINK  UJP     CCGOUT     **  CHANGED TO CCGBAD (INVALID MODE
                                                                CODE) AFTER INITAL **
05160  21005446 21 0 P05446 0          LDQ     CCGMOD
05161  03405167 03 1 P05167 0          AQJ,EQ  CCGINB-1
05162  40005446 40 0 P05446 0          STA     CCGMOD
05163  53500000 53 1  00000 1          TAI     1
05164  40005452 40 0 P05452 0          STA     CMODE
05165  20105453 20 0 P05453 1          LDA     CCGMT,1
05166  40005450 40 0 P05450 0          STA     CCGCNT
05167  01005206 01 0 P05206 0          UJP     CCGINI     CHANGED TO (LDA   CCGMF) AFTER INITAL.

05170  17600001 17 1  00001 2  CCGINB  ANA     1
05171  04600001 04 1  00001 2          ASE     1
05172  01005442 01 0 P05442 0          UJP     CCGOUT     NOT A CCGE SIDE FRAME
05173  20300001 20 0  00001 3          LDA     1,3
05174  17470000 17 1  70000 0          ANA,S   70000B
05175  40200004 40 0  00004 2          STA     4,2
05176  20005452 20 0 P05452 0          LDA     CMODE
05177  12000023 12 0  00023 0          SHA     19
05200  40200002 40 0  00002 2          STA     2,2
05201  15200005 15 0  00005 2          INI     5,2
05202  47205055 47 0 P05055 2          STI     CCGEX,2
05203  14605250 14 1 P05250 2          ENA     CCGFLOP
05204  44005064 44 0 P05064 0          SWA     CCGFLIP
05205  01005442 01 0 P05442 0          UJP     CCGOUT

05206  14605170 14 1 P05170 2  CCGINI  ENA     CCGINB
05207  44005151 44 0 P05151 0          SWA     CCGINC
05210  14605220 14 1 P05220 2          ENA     CCGBAD
05211  44005157 44 0 P05157 0          SWA     CCGINK
05212  14605105 14 1 P05105 2          ENA     CCGINA
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05213  44005102 44 0 P05102 0          SWA     CCGIND
05214  20005217 20 0 P05217 0          LDA     CCGINJ
05215  40005167 40 0 P05167 0          STA     CCGINB-1
05216  01005167 01 0 P05167 0          UJP     CCGINB-1
05217  20005447 20 0 P05447 0  CCGINJ  LDA     CCGMF

05220  40005236 40 0 P05236 0  CCGBAD  STA     CCGBAA+2
05221  14605231 14 1 P05231 2          ENA     CCGBAR
05222  00305167 00 0 P05167 3          SJ3     CCGINB-1
05223  77600400 77 1  00400 2          PAUS    400B
05224  01005223 01 0 P05223 0          UJP     *-1
05225  00703476 00 1 X03476 3          RTJ     PRINT
05226  77600400 77 1  00400 2          PAUS    400B
05227  01005226 01 0 P05226 0          UJP     *-1
05230  01005167 01 0 P05167 0          UJP     CCGINB-1

05231  03005234 03 0 P05234 0  CCGBAR  03      CCGBAA
05232          00600060                VFD     A12/48,A12/48
05233  05000000 05 0  00000 0          05

05234          60444624        CCGBAA  BCD     12, MODE =(     ) INVALID,CONTINUES WITH OLD MODE.
05235          25601374
05236          60606060
05237          34603145
05240          65214331
05241          24732346
05242          45633145
05243          64256260
05244          66316330
05245          60464324
05246          60444624
05247          25336060

05250  20001763 20 0 P01763 0  CCGFLOP LDA     FRAME
05251  17600001 17 1  00001 2          ANA     1
05252  04600000 04 1  00000 2          ASE     0
05253  01005327 01 0 P05327 0          UJP     CCGJNO        ODD FRAME

05254  40005447 40 0 P05447 0          STA     CCGMF         M-FLAG=0
05255  20300001 20 0  00001 3          LDA     1,3             EVEN FRAME
05256  12000012 12 0  00012 0          SHA     10
05257  17400177 17 1  00177 0          ANA,S   177B
05260  14100032 14 0  00032 1          ENI     26,1
05261  14500177 14 1  00177 1          ENQ,S   177B
05262  06105515 06 0 P05515 1          MEQ     CCGMSF,1
05263  01005266 01 0 P05266 0          UJP     CCGJNA    NOT AN ACCEPTABLE MODE SIDE FRAME

05264  14700000 14 1  00000 3          ENQ     0
05265  41005447 41 0 P05447 0          STO     CCGMF
05266  54105450 54 0 P05450 1  CCGJNA  LDI     CCGCNT,1
05267  14777777 14 1  77777 3          ENQ     77777B
05270  06105547 06 0 P05547 1          MEQ     CCGCSF,1
05271  01005442 01 0 P05442 0          UJP     CCGOUT
05272  14600001 14 1  00001 2          ENA     1
```

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05273 34005447 34 0 P05447 0          RAD     CCGMF                                    02803
05274 20001763 20 0 P01763 0          LDA     FRAME                                    02804
05275 40005451 40 0 P05451 0          STA     CCGFR                                    02805
05276 21403066 21 1 P03066 0          LDQ,I   TIMAUR                                   02806
05277 20277776 20 0  77776 2          LDA     -1,2                                     02807
05300 13000014 13 0  00014 0          SHAQ    12                                       02808
05301 12400014 12 1  00014 0          SHQ     12                                       02809
05302 41005444 41 0 P05444 0          STQ     CCGTA                                    02810
05303 25403066 25 1 P03065 0          LDAQ,I  TIMAUR                                   02811
05304 41200000 41 0  00000 2          STQ     0,2                                      02812
05305 12077773 12 0  77773 0          SHA     -4                                       02813
05306 21001762 21 0 P01762 0          LDQ     BERX                                     02814
05307 13000004 13 0  00004 0          SHAQ    4                                        02815
05310 12000006 12 0  00006 0          SHA     6                                        02816
05311 12400006 12 1  00006 0          SHQ     6                                        02817
05312 13000002 13 0  00002 0          SHAQ    2                                        02818
05313 21005452 21 0 P05452 0          LDQ     CMODE                                    02819
05314 12400023 12 1  00023 0          SHQ     19                                       02820
05315 13000014 13 0  00014 0          SHAQ    12                                       02821
05316 40200001 40 0  00001 2          STA     1,2                                      02822
05317 14000000 14 1  00000 2          ENA     0                                        02823
05320 21300001 21 0  00001 3          LDQ     1,3                                      02824
05321 13000014 13 0  00014 0          SHAQ    12                                       02825
05322 40200002 40 0  00002 2          STA     2,2                                      02826
05323 20300003 20 0  00003 3          LDA     3,3                                      02827
05324 40003100 40 0 P03100 0          STA     CCGTEMP                                  02828
05325 54105445 54 0 P05445 1          LDI     CCGINT,1                                 02829
05326 01405060 01 1 P05060 0          UJP,I   CCGE    END OF FLIPFLOP EVEN FRAME       02830
                                                                                       02831
05327 21005451 21 0 P05451 0  CCGJNO  LDQ     CCGFR                                    02832
05330 20001763 20 0 P01763 0          LDA     FRAME                                    02833
05331 15700001 15 1  00001 3          INQ     1                                        02834
05332 03405336 03 1 P05336 0          AQJ,EQ  *+4     CONSECTIVE FRAMES                02835
05333 14000000 14 1  00000 2          ENA     0                                        02836
05334 40005447 40 0 P05447 0          STA     CCGMF                                    02837
05335 01005442 01 0 P05442 0          UJP     CCGOUT                                   02838
                                                                                       02839
05336 20005447 20 0 P05447 0          LDA     CCGMF                                    02840
05337 03005442 03 0 P05442 0          AZJ,EQ  CCGOUT                                   02841
05340 05600002 05 1  00002 2          ASG     2                                        02842
05341 01005366 01 0 P05366 0          UJP     CCGJNB                                   02843
05342 20300001 20 0  00001 3          LDA     1,3                                      02844
05343 12000012 12 0  00012 0          SHA     10                                       02845
                                                                                       02846
05344 17600077 17 1  00077 2          ANA     77B                                      02847
05345 05600020 05 1  00020 2          ASG     16                                       02848
05346 01005350 01 0 P05350 0          UJP     *+2                                      02849
05347 01005220 01 0 P05220 0          UJP     CCGBAD                                   02850
05350 21005446 21 0 P05446 0          LDQ     CCGMOD                                   02851
05351 03405365 03 1 P05365 0          AQJ,EQ  CCGJNB-1                                 02852
05352 40005446 40 0 P05446 0          STA     CCGMOD                                   02853
05353 53600000 53 1  00000 1          TAI     1                                        02854
05354 40005452 40 0 P05452 0          STA     CMODE                                    02855
05355 21200001 21 0  00001 2          LDQ     1,2                                      02856
05356 12400022 12 1  00022 0          SHQ     18                                       02857
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05357 20005452 20 0 P05452 0          LDA     CMODE                                          02857
05360 13077772 13 0  77772 0          SHAQ    -5                                             02858
05361 12000014 12 1  00014 0          SHQ     12                                             02859
05362 41200001 41 0  00001 2          STQ     1,2                                            02860
05363 20105453 20 0 P05453 1          LDA     CCGMT,1                                        02861
05364 40005450 40 0 P05450 0          STA     CCGCNT                                         02862
05365 20005447 20 0 P05447 0          LDA     CCGMF                                          02863
05366 17600001 17 1  00001 2  CCGJNB  ANA     1                                              02864
05367 04600001 04 1  00001 2          ASE     1                                              02865
05370 01005442 01 0 P05442 0          UJP     CCGOUT                                         02866
05371 21300001 21 0  00001 3          LDQ     1,3                                            02867
05372 20003100 20 0 P03100 0          LDA     CCGTEMP                                        02868
05373 13000014 13 0  00014 0          SHAQ    12                                             02869
05374 40200003 40 0  00003 2          STA     3,2                                            02870
05375 21005444 21 0 P05444 0          LDQ     CCGTA                                          02871
05376 41277776 41 0  77776 2          STQ     -1,2                                           02872
05377 14605065 14 1 P05065 2          ENA     CCGFLIP+1                                      02873
05400 44005064 44 0 P05064 0          SWA     CCGFLIP                                        02874
05401 15200004 15 0  00004 2          INI     4,2                                            02875
05402 47205055 47 0 P05055 2          STI     CCGEX,2                                        02876
05403 53200000 53 0  00000 2          TIA     2                                              02877
05404 14700000 14 1  00000 3  CCGC    ENQ     0       SET TO BUFFER LENGTH                   02878
05405 03605431 03 1 P05431 2  CCGW    AQJ,GE  CCGI    SET TO CCGI,CCGJ,OR CCGH BY PROGRAM    02879
05406 01005442 01 0 P05442 0          UJP     CCGOUT                                         02880
05407 14600001 14 1  00001 2  CCGJ    ENA     1                                              02881
05410 40405057 40 1 P05057 0          STA,I   CCGEF                                          02882
05411 14605420 14 1 P05420 2          ENA     CCGH                                           02883
05412 44005405 44 0 P05405 0          SWA     CCGW                                           02884
05413 20005054 20 0 P05054 0          LDA     CCGEB2                                         02885
05414 40005055 40 0 P05055 0          STA     CCGEX                                          02886
05415 15000625 15 1  00625 2          INA     405                                            02887
05416 44005404 44 0 P05404 0          SWA     CCGC                                           02888
05417 01005442 01 0 P05442 0          UJP     CCGOUT                                         02889
05420 14600002 14 1  00002 2  CCGH    ENA     2                                              02890
05421 40405057 40 1 P05057 0          STA,I   CCGEF                                          02891
05422 14605407 14 1 P05407 2          ENA     CCGJ                                           02892
05423 44005405 44 0 P05405 0          SWA     CCGW                                           02893
05424 20005056 20 0 P05056 0          LDA     CCGEB1                                         02894
05425 40005055 40 0 P05055 0          STA     CCGEX                                          02895
05426 15000625 15 1  00625 2          INA     405                                            02896
05427 44005404 44 0 P05404 0          SWA     CCGC                                           02897
05430 01005442 01 0 P05442 0          UJP     CCGOUT                                         02898
                                                                                             02899
05431 20005056 20 0 P05056 0  CCGI    LDA     CCGEB1                                         02900
05432 15000625 15 1  00625 2          INA     405                                            02901
05433 44005404 44 0 P05404 0          SWA     CCGC                                           02902
05434 14605407 14 1 P05407 2          ENA     CCGJ                                           02903
05435 44005405 44 0 P05405 0          SWA     CCGW                                           02904
05436 14600000 14 1  00000 2          ENA     0                                              02905
05437 14700004 14 1  00004 3          ENQ     4       HOW MANY DAYS TO PROCESS               02906
05440 45405057 45 1 P05057 0          STAQ,I  CCGEF                                          02907
05441 01005442 01 0 P05442 0          UJP     CCGOUT                                         02908
                                                                                             02909
                                                                                             02910
```

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05442  54105445 54 0 P05445 1  CCGOUT   LDI       CCGINT,1                    02911
05443  01405060 01 1 P05060 0           UJP,I     CCGE                        02912
                                                                             02913
                                                                             02914
                                                                             02915
05444          00000000         CCGTA    OCT       0                         02916
05445          00000000         CCGINT   OCT       0                         02917
05446          77777766         CCGMOD   OCT       77777766                  02918
05447          00000000         CCGMF    OCT       0                         02919
05450          00000046         CCGCNT   OCT       46                        02920
05451          00000000         CCGFR    OCT       0                         02921
05452          00000000         CMODE    OCT       0                         02922
                                                                             02923
05453          00000046         CCGMT    DEC       38                        02924
05454          00000046                  DEC       38                        02925
05455          00000010                  DEC       8                         02926
05456          00000014                  DEC       12                        02927
05457          00000046                  DEC       38                        02928
05460          00000027                  DEC       23                        02929
05461          00000027                  DEC       23                        02930
05462          00000046                  DEC       38                        02931
05463          00000046                  DEC       38                        02932
05464          00000046                  DEC       38                        02933
05465          00000046                  DEC       38                        02934
05466          00000046                  DEC       38                        02935
05467          00000046                  DEC       38                        02936
05470          00000046                  DEC       38                        02937
05471          00000046                  DEC       38                        02938
05472          00000046                  DEC       38                        02939
05473          00000046                  DEC       38                        02940
05474          00000001         CMOD     DEC       1                         02941
05475          00000001                  DEC       1                         02942
05476          00000002                  DEC       2                         02943
05477          00000003                  DEC       3                         02944
05500          00000001                  DEC       1                         02945
05501          00000005                  DEC       5                         02946
05502          00000005                  DEC       5                         02947
05503          00000001                  DEC       1                         02948
05504          00000001                  DEC       1                         02949
05505          00000001                  DEC       1                         02950
05506          00000001                  DEC       1                         02951
05507          00000001                  DEC       1                         02952
05510          00000001                  DEC       1                         02953
05511          00000001                  DEC       1                         02954
05512          00000001                  DEC       1                         02955
05513          00000001                  DEC       1                         02956
05514          00000001                  DEC       1                         02957
05515          00000003         CCGMSF   DEC       3                         02958
05516          00000013                  DEC       11                        02959
05517          00000017                  DEC       15                        02960
05520          00000023                  DEC       19                        02961
05521          00000027                  DEC       23                        02962
05522          00000033                  DEC       27                        02963
05523          00000037                  DEC       31                        02964
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05524   00000043          DEC   35                                  02965
05525   00000053          DEC   43                                  02966
05526   00000057          DEC   47                                  02967
05527   00000063          DEC   51                                  02968
05530   00000067          DEC   55                                  02969
05531   00000073          DEC   59                                  02970
05532   00000077          DEC   63                                  02971
05533   00000103          DEC   67                                  02972
05534   00000113          DEC   75                                  02973
05535   00000117          DEC   79                                  02974
05536   00000123          DEC   83                                  02975
05537   00000127          DEC   87                                  02976
05540   00000133          DEC   91                                  02977
05541   00000137          DEC   95                                  02978
05542   00000143          DEC   99                                  02979
05543   00000153          DEC   107                                 02980
05544   00000157          DEC   111                                 02981
05545   00000163          DEC   115                                 02982
05546   00000167          DEC   119                                 02983
05547   00000001   CCGCSF  DEC   1                                   02984
05550   00000002          DEC   2                                   02985
05551   00000003          DEC   3                                   02986
05552   00000005          DEC   5                                   02987
05553   00000007          DEC   7                                   02988
05554   00000010          DEC   8                                   02989
05555   00000011          DEC   9                                   02990
05556   00000012          DEC   10                                  02991
05557   00000030          DEC   24                                  02992
05560   00000031          DEC   25                                  02993
05561   00000042          DEC   34                                  02994
05562   00000047          DEC   39                                  02995
05563   00000050          DEC   40                                  02996
05564   00000051          DEC   41                                  02997
05565   00000052          DEC   42                                  02998
05566   00000070          DEC   56                                  02999
05567   00000071          DEC   57                                  03000
05570   00000102          DEC   66                                  03001
05571   00000103          DEC   67                                  03002
05572   00000107          DEC   71                                  03003
05573   00000110          DEC   72                                  03004
05574   00000111          DEC   73                                  03005
05575   00000112          DEC   74                                  03006
05576   00000130          DEC   88                                  03007
05577   00000131          DEC   89                                  03008
05600   00000142          DEC   98                                  03009
05601   00000147          DEC   103                                 03010
05602   00000150          DEC   104                                 03011
05603   00000151          DEC   105                                 03012
05604   00000152          DEC   106                                 03013
05605   00000170          DEC   120                                 03014
05606   00000171          DEC   121                                 03015
05607   00000172          DEC   122                                 03016
05610   00000173          DEC   123                                 03017
05611   00000174          DEC   124                                 03018
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05612           00000175                DEC     125                             03019
05613           00000176                DEC     126                             03020
05614           00000177                DEC     127                             03021
```

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                                                                                ROUTINE TO PROCESS CHARGED PARTICLE
05615          23474362                    BCD     2,CPLSPEAL
05616          47252143
05617          00001452                    DEC     810
05620  00002100 00 0 C02100 0  CPLB2       00      BUF1+2100B
05621  00000000 00 0 C00000 0  CPLX        00      BUF1
05622  00000000 00 0 C00000 0  CPLB1       00      BUF1
05623  00001764 00 0 P01764 0  CPLF        00      WAF
05624  01005624 01 0 P05624 0  CPL         UJP     *
05625  54303067 54 0 P03067 3              LDI     DATADR,3
05626  54205621 54 0 P05621 2              LDI     CPLX,2
05627  25403066 25 1 P03066 0              LDAQ,I  TIMADR
05630  13000014 13 0  00014 0              SHAQ    12
05631  40200000 40 0  00000 2              STA     0,2
05632  13000014 13 0  00014 0              SHAQ    12
05633  21001762 21 0 P01762 0              LDQ     BERX
05634  13000014 13 0  00014 0              SHAQ    12
05635  40200001 40 0  00001 2              STA     1,2
05636  14600000 14 1  00000 2              ENA     0
05637  40200002 40 0  00002 2              STA     2,2
05640  21300000 21 0  00000 3              LDQ     0,3
05641  13000014 13 0  00014 0              SHAQ    12
05642  12000014 12 0  00014 0              SHA     12
05643  40200010 40 0  00010 2              STA     8,2
05644  20300010 20 0  00010 3              LDA     8,3
05645  40200003 40 0  00003 2              STA     3,2
05646  20300011 20 0  00011 3              LDA     9,3
05647  12000014 12 0  00014 0              SHA     12
05650  13000014 13 0  00014 0              SHAQ    12
05651  40200004 40 0  00004 2              STA     4,2
05652  25300001 25 0  00001 3              LDAQ    1,3
05653  13000014 13 0  00014 0              SHAQ    12
05654  40200005 40 0  00005 2              STA     5,2
05655  25300003 25 0  00003 3              LDAQ    3,3
05656  12000014 12 0  00014 0              SHA     12
05657  13000014 13 0  00014 0              SHAQ    12
05660  40200006 40 0  00006 2              STA     6,2
05661  20300006 20 0  00006 3              LDA     6,3
05662  21300012 21 0  00012 3              LDQ     10,3
05663  13000014 13 0  00014 0              SHAQ    12
05664  40200007 40 0  00007 2              STA     7,2
05665  15200011 15 0  00011 2              INI     9,2
05666  47205621 47 0 P05621 2              STI     CPLX,2
05667  53200000 53 0  00000 2              TIA     2
05670  14700000 14 1  00000 3  CPLC        ENQ     0          SET TO BUFFER LENGTH
05671  03605715 03 1 P05715 2  CPLW        AQJ,GE  CPLI     SET TO CPLI,CPLJ,OR CPLH BY PROGRAM
05672  01405624 01 1 P05624 0              UJP,I   CPL
05673  14600001 14 1  00001 2  CPLJ        ENA     1
05674  40405623 40 1 P05623 0              STA,I   CPLF
05675  14605704 14 1 P05704 2              ENA     CPLH
05676  44005671 44 0 P05671 0              SWA     CPLW
05677  20005620 20 0 P05620 0              LDA     CPLB2
05700  40005621 40 0 P05621 0              STA     CPLC
05701  15601452 15 1  01452 2              INA     810
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05702  44405670 44 0 P05670 0          SWA     CPLC                                    03076
05703  01405624 01 1 P05624 0          UJP,I   CPL                                     03077
05704  14600002 14 1  00002 2  CPLH    ENA     2                                       03078
05705  40405623 40 1 P05623 0          STA,I   CPLF                                    03079
05706  14605673 14 1 P05673 2          ENA     CPLJ                                    03080
05707  44405671 44 0 P05671 0          SWA     CPLW                                    03081
05710  20005622 20 0 P05622 0          LDA     CPL^1                                   03082
05711  40015621 40 0 P05621 0          STA     CPL^                                    03083
05712  15601452 15 1  01452 2          INA     810                                     03084
05713  44005670 44 0 P05670 0          SWA     CPLC                                    03085
05714  01405624 01 1 P05624 0          UJP,I   CPL                                     03086
05715  20005622 20 0 P05622 0  CPLI     LDA     CPL^1                                   03087
05716  15601452 15 1  01452 2          INA     810                                     03088
05717  44005670 44 0 P05670 0          SWA     CPLC                                    03089
05720  14605673 14 1 P05673 2          ENA     CPLJ                                    03090
05721  44405671 44 0 P05671 0          SWA     CPLW                                    03091
05722  14600000 14 1  00000 2          ENA     0                                       03092
05723  14700002 14 1  00002 3          ENQ     2       HOW MANY DAYS TO PROCESS        03093
05724  45405623 45 1 P05623 0          STAQ,I  CPLF                                    03094
05725  01405624 01 1 P05624 0          UJP,I   CPL                                     03095
                                                                                       03096
                                                                                       03097
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                                                  ... ROUTINE TO FORMAT LUNAR EJECTA AND METEORITE
                                                                                  PI TAPES ...
05726  01006017 01 0 P06017 0          UJP     LEAMI
05727          43252144                BCD     2,LEAMEXAL
05730          25672143
05731          00001034                DEC     540
05732  00002100 00 0 C02100 0  LEAMB2  00      BUF1+2100B
05733  00000000 00 0 C00000 0  LEAMX   00      BUF1
05734  00000000 00 0 C00000 0  LEAMB1  00      BUF1
05735  00001764 00 0 P01764 0  LEAMF   00      WAF
05736  01005736 01 0 P05736 0  LEAM    UJP     *
05737  54205733 54 0 P05733 2          LDI     LEAMX,2
05740  54303067 54 0 P03067 3          LDI     DATADR,3
05741  25403066 25 1 P03066 0          LDAQ,I  TIMADR
05742  13000014 13 0  00014 0          SHAQ    12
05743  40200000 40 0  00000 2          STA     0,2
05744  13000014 13 0  00014 0          SHAQ    12
05745  21001762 21 0 P01762 0          LDQ     BERX
05746  13000014 13 0  00014 0          SHAQ    12
05747  40200001 40 0  00001 2          STA     1,2
05750  14700000 14 1  00000 3          ENQ     0
05751  20300000 20 0  00000 3          LDA     0,3
05752  13000014 13 0  00014 0          SHAQ    12
05753  40200002 40 0  00002 2          STA     2,2
05754  25300010 25 0  00010 3          LDAQ    8,3
05755  40200003 40 0  00003 2          STA     3,2
05756  20300003 20 0  00003 3          LDA     3,3
05757  13000014 13 0  00014 0          SHAQ    12
05760  12000014 12 0  00014 0          SHA     12
05761  40200004 40 0  00004 2          STA     4,2
05762  20300012 20 0  00012 3          LDA     12,3
05763  12000014 12 0  00014 0          SHA     12
05764  21300004 21 0  00004 3          LDQ     4,3
05765  13000014 13 0  00014 0          SHAQ    12
05766  40200005 40 0  00005 2          STA     5,2
05767  15200006 15 0  00006 2          INI     6,2
05770  47205733 47 0 P05733 2          STI     LEAMX,2
05771  53200000 53 0  00000 2          TIA     2
05772  14700000 14 1  00000 3  LEAMC   ENQ     0
05773  03606017 03 1 P06017 2  LEAMW   AQJ,GE  LEAMI     SET TO LEAMI,LEAMJ,LEAMH BY PROGRAM
05774  01405736 01 1 P05736 0          UJP,I   LEAM
05775  14600001 14 1  00001 2  LEAMJ   ENA     1
05776  40405735 40 1 P05735 0          STA,I   LEAMF
05777  14606006 14 1 P06006 2          ENA     LEAMH
06000  44005773 44 0 P05773 0          SWA     LEAMW
06001  20005732 20 0 P05732 0          LDA     LEAMB2
06002  40005733 40 0 P05733 0          STA     LEAMX
06003  15601034 15 1  01034 2          INA     540
06004  44005772 44 0 P05772 0          SWA     LEAMC
06005  01405736 01 1 P05736 0          UJP,I   LEAM
06006  14600002 14 1  00002 2  LEAMH   ENA     2
06007  40405735 40 1 P05735 0          STA,I   LEAMF
06010  14605775 14 1 P05775 2          ENA     LEAMJ
06011  44005773 44 0 P05773 0          SWA     LEAMJ
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06012 20005734 20 0 P05734 0          LDA     LEAM91                    03152
06013 40005733 40 0 P05733 0          STA     LEAMX                     03153
06014 15601034 15 1  01034 2          INA     540                       03154
06015 44005772 44 0 P05772 0          SWA     LEAMC                     03155
06016 01405734 01 1 P05736 0          UJP,I   LEAM                      03156
06017 20005734 20 0 P05734 0 LEAMI    LDA     LEAMH1                    03157
06020 15601034 15 1  01034 2          INA     540                       03158
06021 44005772 44 0 P05772 0          SWA     LEAMC                     03159
06022 14605775 14 1 P05775 2          ENA     LEAMJ                     03160
06023 44005773 44 0 P05773 0          SWA     LEAMX                     03161
06024 14600000 14 1  00000 2          ENA     0                         03162
06025 14700003 14 1  00003 3          ENQ     3       HOW MANY DAYS TO PROCESS  03163
06026 45405735 45 1 P05735 0          STAQ,I  LEAMF                     03164
06027 01405736 01 1 P05736 0          UJP,I   LEAM                      03165
                                                                        03166
```

```
                                    .. ROUTINE TO FORMAT LUNAR MASS SPECTROMETER PI TAPES ...   03168
                                                                                                03169
06030 01006170 01 0 P06170 0        UJP     LMSI                                                03170
06031          43446225             BCD     2,LMSEXPAL                                          03171
06032          67472143
06033          00001243             DEC     675                                                 03172
06034 00002100 00 0 C02100 0 LMS82  00      BUF1+2100B                                          03173
06035 00000000 00 0 C00000 0 LMSX   00      BUF1                                                03174
06036 00000000 00 0 C00000 0 LMS81  00      BUF1                                                03175
06037 00001764 00 0 P01764 0 LMSF   00      WAF                                                 03176
06040 01006040 01 0 P06040 0 LMS    UJP     *                                                   03177
06041 54303067 54 0 P03067 3        LDI     DATADR,3                                            03178
06042 54206035 54 0 P06035 2        LDI     LMSX,2                                              03179
06043 01006044 01 0 P06044 0 LMSFLIP UJP    *+1                                                 03180
06044 14606101 14 1 P06101 2        ENA     LMSFLOP                                             03181
06045 44006043 44 0 P06043 0        SWA     LMSFLIP                                             03182
06046 25403066 25 1 P03066 0        LDAQ,I  TIMADR                                              03183
06047 13000014 13 0  00014 0        SHAQ    12                                                  03184
06050 40200000 40 0  00000 2        STA     0,2                                                 03185
06051 13000014 13 0  00014 0        SHAQ    12                                                  03186
06052 21001762 21 0 P01762 0        LDQ     BERX                                                03187
06053 13000014 13 0  00014 0        SHAQ    12                                                  03188
06054 40200001 40 0  00001 2        STA     1,2                                                 03189
06055 14700000 14 1  00000 3        ENQ     0                                                   03190
06056 20300000 20 0  00000 3        LDA     0,3                                                 03191
06057 13000014 13 0  00014 0        SHAQ    12                                                  03192
06060 40200002 40 0  00002 2        STA     2,2                                                 03193
06061 25300010 25 0  00010 3        LDAQ    8,3                                                 03194
06062 40200003 40 0  00003 2        STA     3,2                                                 03195
06063 13000014 13 0  00014 0        SHAQ    12                                                  03196
06064 21300000 21 0  00000 3        LDQ     0,3                                                 03197
06065 13000014 13 0  00014 0        SHAQ    12                                                  03198
06066 40200004 40 0  00004 2        STA     4,2                                                 03199
06067 25300001 25 0  00001 3        LDAQ    1,3                                                 03200
06070 13000014 13 0  00014 0        SHAQ    12                                                  03201
06071 40200005 40 0  00005 2        STA     5,2                                                 03202
06072 13000014 13 0  00014 0        SHAQ    12                                                  03203
06073 21300012 21 0  00012 3        LDQ     10,3                                                03204
06074 13000014 13 0  00014 0        SHAQ    12                                                  03205
06075 40200006 40 0  00006 2        STA     6,2                                                 03206
06076 15200007 15 0  00007 2        INI     7,2                                                 03207
06077 47206035 47 0 P06035 2        STI     LMSX,2                                              03208
06100 01406040 01 1 P06040 0        UJP,I   LMS                                                 03209
06101 14606044 14 1 P06044 2 LMSFLOP ENA    LMSFLIP+1                                           03210
06102 44006043 44 0 P06043 0        SWA     LMSFLIP                                             03211
06103 25403066 25 1 P03066 0        LDAQ,I  TIMADR                                              03212
06104 41200001 41 0  00001 2        STQ     1,2                                                 03213
06105 14700000 14 1  00000 3        ENQ     0                                                   03214
06106 12000014 12 0  00014 0        SHA     12                                                  03215
06107 13000014 13 0  00014 0        SHAQ    12                                                  03216
06110 41200000 41 0  00000 2        STQ     0,2                                                 03217
06111 20300000 20 0  00000 3        LDA     0,3                                                 03218
06112 21001762 21 0 P01762 0        LDQ     BERA                                                03219
06113 13000014 13 0  00014 0        SHAQ    12                                                  03220
```

```
06114  12000014 12 0  00014 0          SHA     12
06115  40200002 40 0  00002 2          STA     2,2
06116  25300010 25 0  00010 3          LDAQ    8,3
06117  13000014 13 0  00014 0          SHAQ    12
06120  40200004 40 0  00004 2          STA     4,2
06121  14600000 14 1  00000 2          ENA     0
06122  12400014 12 1  00014 0          SHQ     12
06123  13000014 13 0  00014 0          SHAQ    12
06124  40200003 40 0  00003 2          STA     3,2
06125  25300000 25 0  00000 3          LDAQ    0,3
06126  13000014 13 0  00014 0          SHAQ    12
06127  12400014 12 1  00014 0          SHQ     12
06130  41200005 41 0  00005 2          STQ     5,2
06131  20300002 20 0  00002 3          LDA     2,3
06132  40200006 40 0  00006 2          STA     6,2
06133  20300012 20 0  00012 3          LDA     10,3
06134  14700000 14 1  00000 3          ENQ     0
06135  13000014 13 0  00014 0          SHAQ    12
06136  12400014 12 1  00014 0          SHQ     12
06137  41200007 41 0  00007 2          STQ     7,2
06140  15200010 15 0  00010 2          INI     8,2
06141  47206035 47 0  P06035 2          STI     LMSX,2
06142  53200000 53 0  00000 2          TIA     2
06143  14700000 14 1  00000 3  LMSC    ENQ     0          SET TO BUFFER LENGTH
06144  03606170 03 1  P06170 2  LMSW    AQJ,GE  LMSI       SET TO LMSI,LMSJ,OR LMSH BY PROGRAM
06145  01406040 01 1  P06040 0          UJP,I   LMS
06146  14600001 14 1  00001 2  LMSJ    ENA     1
06147  40406037 40 1  P06037 0          STA,I   LMSF
06150  14606157 14 1  P06157 2          ENA     LMSH
06151  44006144 44 0  P06144 0          SWA     LMSW
06152  20006034 20 0  P06034 0          LDA     LMSB2
06153  40006035 40 0  P06035 0          STA     LMSX
06154  15601243 15 1  01243 2          INA     675
06155  44006143 44 0  P06143 0          SWA     LMSC
06156  01406040 01 1  P06040 0          UJP,I   LMS
06157  14600002 14 1  00002 2  LMSH    ENA     2
06160  40406037 40 1  P06037 0          STA,I   LMSF
06161  14606146 14 1  P06146 2          ENA     LMSJ
06162  44006144 44 0  P06144 0          SWA     LMSW
06163  20006036 20 0  P06036 0          LDA     LMSB1
06164  40006035 40 0  P06035 0          STA     LMSX
06165  15601243 15 1  01243 2          INA     675
06166  44006143 44 0  P06143 0          SWA     LMSC
06167  01406040 01 1  P06040 0          UJP,I   LMS
06170  20006036 20 0  P06036 0  LMSI    LDA     LMSB1
06171  15601243 15 1  01243 2          INA     675
06172  44006143 44 0  P06143 0          SWA     LMSC
06173  14606146 14 1  P06146 2          ENA     LMSJ
06174  44006144 44 0  P06144 0          SWA     LMSW
06175  14600000 14 1  00000 2          ENA     0
06176  14700003 14 1  00003 3          ENQ     3          HOW MANY DAYS TO PROCESS
06177  45406037 45 1  P06037 0          STAQ,I  LMSF
06200  01406040 01 1  P06040 0          UJP,I   LMS
```

```
06231 01077777 01 0  77777 0  VERIFY  UJP     **        ROUTINE TO CHECK NUMBER OF BITS IN ERROR   03276
06232 47106227 47 0 P06227 1            STI     EXITV,1    IN SYNC PATTERN , BIT ERROR RATE IS     03277
06233 47306230 47 0 P06230 3            STI     EXITV+1,3   RETURNED IN A-REGISTER.               03278
06234 13077761 13 0  77761 0            SHAQ    -14                                               03279
06235 17601777 17 1  01777 2            ANA     1777B                                             03280
06236 16401611 16 1  01611 0            XOA,S   1611B       1ST 10 BITS (SYNC. MASK)              03281
06237 12400002 12 1  00002 0            SHQ     2                                                 03282
06210 13000012 13 0  00012 0            SHAQ    10                                                03283
06211 12400002 12 1  00002 0            SHQ     2                                                 03284
06212 13000002 13 0  00002 0            SHAQ    2                                                 03285
06213 16400355 16 1  00355 0            XOA,S   355B        NEXT 12 BITS (SYNC MASK)              03286
06214 03006201 03 0 P06201 0            AZJ,EQ  VERIFY.       ALL 22 BITS MATCHED                 03287
06215 14300005 14 0  00005 3            ENI     5,3         ..6 4BIT CHAR.                        03288
06216 13077747 13 0  77747 0            SHAQ    -24                                               03289
06217 40006232 40 0 P06232 0            STA     RATE          ZERO RATE                           03290
06220 14400000 14 1  00000 0  VERIFY1   ENA,S   0                                                 03291
06221 13000004 13 0  00004 0            SHAQ    4                                                 03292
06222 53500000 53 1  00000 1            TAI     1                                                 03293
06223 22431154 22 1 P06233 0            LACH    BITS,1                                            03294
06224 34006232 34 0 P06232 0            RAD     RATE                                              03295
06225 02706220 02 1 P06220 3            IJD     VERIFY1,3                                         03296
06226 20006232 20 0 P06232 0            LDA     RATE                                              03297
06227 14177777 14 0  77777 1  EXITV     ENI     **,1                                              03298
06230 14377777 14 0  77777 3            ENI     **,3                                              03299
06231 01006201 01 1 P06201 0            UJP,I   VERIFY                                            03300
                                                                                                  03301
                                                                                                  03302
06232          00000000         RATE    OCT     0                                                 03303
06233          00010102         BITS    OCT     00010102                                          03304
06234          01020203                 OCT     01020203                                          03305
06235          01020203                 OCT     01020203                                          03306
06236          02030304                 OCT     02030304                                          03307
```

```
                                                                                                                  03309
06237    25452751    EXP     BCD     10,ENGRMAGEHEATSOLWSIDECCGECPLSMSCCLEAMLMSE                                  03310
06240    44212725
06241    30252163
06242    62464366
06243    62312425
06244    23232725
06245    23474362
06246    44622323
06247    43252144
06250    43446225
06251                PIRO    BSS     20                                                                           03311
06275                DAYS    BSS     20                                                                           03312
06321                DIRECT  BSS     160                                                                          03313
06561                INPUT   BSS     1200B       33400                                                            03314
07761                INPUT2  BSS     1200B       34600                                                            03315
11161                CARDBUFF BSS    200                                                                          03316
11471                PAD     BSS     230B                                                                         03317
                             COMMON                                                                               03318
00000                BUF1    BSS     4200B       16600                                                            03319
04200                BUF2    BSS     4200B       23000                                                            03320
10400                BUF3    BSS     4200B       27200                                                            03321
                                                                                                                  03322
                             END     ALSEPPI                                                                      03323

LITERALS
11721    60606060    11722    00000012    11723    03641100
11724    60046060    11725    60036060    11726    60026060

                    NUMBER OF LINES WITH DIAGNOSTICS    0
```

ADR	P03043	P00674 00469			
AFLN	P01757	P01677 01000			
AL12	P00307	P00315 00233			
AL14	P00354	P00362 00265			
AL15	P00416	P00424 00300			
AL16	P00462	P00470 00335			
AL17	P00517	P00525 00366			
ALNDEC	P01774	P01223 00688			
ALNUM	P03060	P00322 00240	P00367 00271	P00431 00306	P00475 00341
		P00532 00373	P01120 00623	P01224 00689	P01702 01003
		P02605 01481	P02653 01523	P02722 01565	P03702 02040
ALSP12	P00305	P00072 00102			
ALSP14	P00352	P00073 00103			
ALSP15	P00414	P00074 00104			
ALSP16	P00460	P00075 00105			
ALSP17	P00515	P00076 00106			
ALTAB	P00077	P00067 00099	P01221 00686		
BCD1	P04116	P04114 02154			
BCD2	P04117	P04104 02146			
BCDOCT	P04103	P02603 01479	P02606 01482	P02612 01486	P02654 01524
		P02660 01528	P02663 01531	P02723 01566	P02727 01570
		P02732 01573	P03552 01989	P03555 01992	P03560 01995
		P03563 01998	P03566 02001	P03703 02041	P04120 02158
BER	P01761	P02025 01102	P02030 01105		
BERX	P01762	P02036 01111	P04141 02176	P04244 02247	P04307 02284
		P04423 02363	P04541 02442	P04603 02476	P04744 02579
		P04774 02603	P05121 02695	P05306 02814	P05633 03037
		P05745 03115	P06052 03187	P06112 03219	
BITS	P06233	P06223 03294			
BLOOP	P04110	P04115 02155			
BUF1	C00000	P00727 00497	P02326 01301	P03122 01706	P03130 01712
		P03162 01740	P04126 02165	P04127 02166	P04130 02167
		P04226 02232	P04227 02233	P04230 02234	P04410 02352
		P04411 02353	P04412 02354	P04523 02428	P04524 02429
		P04525 02430	P04677 02539	P04700 02540	P04701 02541
		P05054 02656	P05055 02657	P05056 02658	P05620 03026
		P05621 03027	P05622 03028	P05732 03104	P05733 03105
		P05734 03106	P06034 03173	P06035 03174	P06036 03175
BUF2	C04200	P00760 00524	P02443 01368	P03216 01773	P03224 01779
		P03256 01808			
BUF3	C10400	P01011 00551	P02523 01422	P03312 01841	P03320 01847
		P03352 01876			
CARDBUFF	P11161	P00011 00047	P00011 00047	P00054 00088	P00056 00090
		P00065 00097	P00311 00229	P00356 00261	P00420 00296
		P00464 00331	P00521 00362	P00656 00453	P00670 00465
CARDCON	P00003	P00131 00133			
CARDERA	P00153	P00030 00064			
CARDERF	P00126	P00035 00069	P00051 00084	P00210 00166	P00316 00234
		P00363 00266	P00425 00301	P00471 00336	P00526 00367
		P00702 00475			
CARDERQ	P00235	P00053 00086			
CARDERR	P00162	P00153 00146			
CARDIN	P00037	P00021 00056			

```
CARDLT      P00047
CARDRD      P00011

CARDRJ      P00131
CARDS       P00127


CCGBAA      P05234
CCGBAD      P05220
CCGBAR      P05231
CCGC        P05404
CCGCNT      P05450
CCGCSF      P05547
CCGE        P05060
CCGEB1      P05056
CCGEB2      P05054
CCGEF       P05057
CCGEX       P05055

CCGFLIP     P05064
CCGFLOP     P05250
CCGFR       P05451
CCGH        P05420
CCGI        P05431
CCGINA      P05105
CCGINB      P05170

CCGINC      P05151
CCGIND      P05102
CCGINI      P05206
CCGINJ      P05217
CCGINK      P05157
CCGINO      P05137
CCGINT      P05445
CCGJ        P05407
CCGJNA      P05266
CCGJNB      P05366
CCGJNO      P05327
CCGMF       P05447


CCGMOD      P05446
CCGMSF      P05515
CCGMT       P05453
CCGOUT      P05442


CCGTA       P05444
CCGTEMP     P03100
CCGW        P05405
CMOVE       P05452

CMSG        P00142
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```
P00026 00062    P00036 00070
P00023 00059    P00037 00071    P00041 00073    P00042 00074
P00046 00079
P00004 00042
P00025 00061    P00044 00076    P00060 00092    P00062 00094
P00157 00150    P00306 00226    P00353 00258    P00415 00293
P00461 00328    P00516 00359    P02231 01243
P05220 02766    P05231 02776
P05210 02757    P05347 02849
P05221 02767
P05416 02888    P05427 02897    P05433 02902
P05105 02683    P05166 02737    P05266 02798    P05364 02862
P05107 02685    P05279 02800
P03050 01656    P05130 02709    P05326 02830    P05443 02912
P05424 02894    P05431 02900
P05413 02885
P05410 02882    P05421 02891    P05440 02907
P05062 02662    P05202 02750    P05402 02876    P05414 02886
P05425 02895
P05204 02752    P05377 02873    P05400 02874
P05203 02751
P05073 02672    P05140 02713    P05275 02805    P05327 02832
P05411 02883
P05050 02653    P05405 02879
P05212 02759
P05161 02732    P05206 02755    P05215 02762    P05216 02763
P05222 02768    P05230 02774
P05207 02756
P05213 02760
P05167 02738
P05214 02761
P05211 02758
P05070 02668
P05063 02663    P05135 02708    P05325 02829    P05442 02911
P05422 02892    P05434 02903
P05263 02794
P05341 02843    P05351 02851
P05253 02785
P05071 02670    P05104 02682    P05112 02688    P05144 02717
P05146 02720    P05217 02764    P05254 02787    P05265 02797
P05273 02803    P05334 02837    P05336 02840    P05365 02863
P05160 02731    P05162 02733    P05350 02850    P05352 02852
P05101 02678    P05262 02793
P05165 02736    P05363 02861
P05102 02679    P05110 02686    P05145 02718    P05147 02721
P05151 02723    P05157 02729    P05172 02742    P05205 02753
P05271 02801    P05335 02838    P05337 02841    P05370 02866
P05406 02880    P05417 02869    P05430 02898    P05441 02908
P05302 02810    P05375 02871
P05324 02828    P05372 02868
P05412 02884    P05423 02893    P05435 02904
P05164 02735    P05176 02745    P05313 02819    P05354 02854
P05357 02857
P00137 00140
```

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CMSGA      P00137                  P00132 00134
CPL        P05624                  P03051 01657   P05672 03068   P05703 03077   P05714 03086
                                   P05725 03095
CPLB1      P05622                  P05710 03082   P05715 03087
CPLB2      P05620                  P05677 03073
CPLC       P05670                  P05702 03076   P05713 03085   P05717 03089
CPLF       P05623                  P05674 03070   P05705 03079   P05724 03094
CPLH       P05704                  P05675 03071
CPLI       P05715                  P05671 03067
CPLJ       P05673                  P05706 03080   P05720 03090
CPLW       P05671                  P05676 03072   P05707 03081   P05721 03091
CPLX       P05621                  P05626 03032   P05666 03064   P05700 03074   P05711 03083
DATA       P03064                  P01126 00629   P01135 00636   P01137 00638   P01434 00821
                                   P01465 00848   P01533 00890   P01552 00908   P01600 00932
                                   P01617 00948   P01634 00963   P01636 00965   P01642 00969
                                   P01644 00971   P01650 00975
DATADR     P03067                  P01661 00985   P02004 01085   P02016 01095   P04134 02171
                                   P04233 02237   P04415 02357   P04530 02433   P04704 02544
                                   P05061 02661   P05625 03031   P05740 03110   P06041 03178
DAYCHECK   P01107                  P01042 00580   P01123 00626   P01132 00633   P02245 01255
                                   P02250 01260   P02554 01452
DAYCNT     P03070                  P00707 00460   P00737 00506   P00770 00533   P01076 00605
                                   P01112 00617   P01212 00679   P01665 00990   P02116 01165
                                   P02147 01191   P02151 01193   P02155 01197   P02157 01199
                                   P02163 01203   P02165 01205   P02172 01210   P02176 01214
                                   P02177 01216   P02276 01277   P02413 01344   P02473 01398
                                   P02556 01454   P03547 01986
DAYFOL     P03071                  P01667 00992   P02201 01218   P02205 01222   P02207 01224
                                   P02213 01228   P02215 01230   P02222 01235   P02226 01239
DAYS       P06275                  P00657 00464   P00705 00478   P00736 00505   P00767 00532
                                   P02277 01278   P02414 01345   P02474 01399
DDIR       P03063                  P01024 00566
DEND       P02104                  P01664 00988
DFLG       P03057                  P01320 00738   P01323 00741   P01340 00755   P01517 00878
                                   P01522 00881   P01567 00923
DIRECT     P06321                  P01033 00573   P01114 00619   P01117 00622   P01125 00628
DIRR       P01065                  P01070 00599
DISA       P01633                  P01531 00888   P01562 00916   P01576 00930   P01627 00956
                                   P01641 00968   P01651 00976
DISKA      P01566                  P01520 00879
DISKB      P01577                  P01611 00941   P01632 00960
DISKC      P01532                  P01544 00901   P01565 00919
DISKRD     P01517                  P01133 00634   P01140 00639
DMSG       P02376                  P02343 01318   P02345 01320   P02373 01337   P02461 01385
                                   P02463 01387   P02541 01439   P02543 01441
DMSGA      P02373                  P02346 01322   P02464 01388   P02544 01442
DR         P01756                  P02033 01108
DRR        P01055                  P01050 00587
DRPA       P01050                  P01043 00582
DSKINIT                EXTERNAL    P00001 00039
DSKSTAT                EXTERNAL    P01036 00576   P01052 00589   P01446 00831   P01477 00858
                                   P01523 00882   P01570 00924
DTA        P03073                  P00706 00479   P02301 01280
DTB        P03074                  P00743 00510   P02416 01347
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```
      UTC       P03075
      END       P00130
      ENGR      P04132

      ENGRB1    P04130
      ENGRB2    P04126
      ENGRC     P04164
      ENGRF     P04131
      ENGRH     P04200
      ENGRI     P04211
      ENGRJ     P04167
      ENGRM     P04155
      ENGRN     P04165
      ENGRX     P04127
      EXER      P00225

      EXERA     P00232
      EXITV     P06227
      EXLAST    P00677
      EXP       P06237
      EXP12     P00337
      EXP14     P00416
      EXP15     P00452
      EXP16     P00512
      EXP17     P00556
      EXPR      P00215
      EXPRA     P00212
      EXPRB     P00177

      FCXM      P02055
      FCYL      P02001
      FMA       P02041

      FMB       P02045

      FMC       P02051

      FMT       P01317

      FORA      P03606

      FORB      P03655



      FORC      P03726
      FORT      P04062

      FRAME     P01763


      HFL       P04703
```

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P00774 00537    P02476 01401
P00022 00058    P00045 00077    P01663 00987
P03043 01651    P04166 02198    P04177 02207    P04210 02216
P04221 02225
P04204 02212    P04211 02217
P04173 02203
P04176 02206    P04207 02215    P04213 02219
P04170 02200    P04201 02209    P04220 02224
P04171 02201
P04122 02162    P04165 02197
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                P03255 01806    P03266 01818    P03272 01822    P03277 01827
                P02054 01127    P02700 01545    P02705 01551    P03343 01866
                P03351 01874    P03362 01886    P03366 01890    P03373 01895
                P00724 00494    P02323 01298    P03125 01709    P03165 01743
                P03166 01744    P03542 01979
                P03112 01696    P03401 01902    P03413 01912
                P01213 00680    P01225 00690
                P01250 00712
                P01245 00709
                P00755 00521    P02440 01365    P03221 01776    P03261 01811
                P03262 01812    P03543 01980
                P03206 01763    P03435 01923    P03447 01933
                P01006 00548    P02520 01419    P03315 01844    P03355 01879
                P03356 01880    P03544 01981
                P03302 01831    P03472 01945    P03504 01955
                P02625 01497    P02670 01542    P02745 01584    P03133 01715
                P03135 01717    P03174 01752    P03227 01782    P03231 01784
                P03270 01820    P03323 01850    P03325 01852    P03364 01888
                P03375 01898    P03431 01919    P03466 01941    P03523 01964
                P03536 01975    P03540 01977
                P03121 01705
                P03215 01772
                P03311 01840
                P03140 01720    P03142 01722
                P03234 01787    P03236 01789
                P03330 01855    P03332 01857
                P00275 00210    P00408 00283    P00402 00285    P00546 00389
```

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                #AP             P03374
                #AQ             P03402
                #BP             P03430
                #BQ             P03436
                #CP             P03465
                #CQ             P03473
                #F              P03522

                #HQA            P03416
                #HQAA           P03414
                #HQB            P03453
                #HQBA           P03450
                #HQC            P03510
                #HQCA           P03505
                #HTA            P03110

                #HTB            P03204

                #HTC            P03300

                #IA             P03126

                #IAA            P03167
                #IAPE           P01245
                #IAPEM          P01253
                #IAPEMA         P01250
                #IB             P03222

                #IBB            P03263
                #IC             P03316

                #ICC            P03357
                #QF             P03077

                #AA             P03162
                #AB             P03256
                #AC             P03352
                #TA             P03154
                #TB             P03250
                #TC             P03344
                ZA              P00203
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ZB          P00265                          P00277 00218
ZC          P00266                          P00442 00317
ZD          P00267                          P00301 00220
ZE          P00270                          P00303 00222    P00444 00319
ZF          P00271                          P00543 00386
ZG          P00273                          P00550 00391
LITERAL     P11726      60026060            P02614 01488
LITERAL     P11725      60036060            P02665 01533
LITERAL     P11724      60046060            P02734 01575
LITERAL     P11721      60606060            P04105 02147
LITERAL     P11722      00000012            P03774 02085    P04004 02093    P04026 02113    P04036 02121
                                            P04112 02152
LITERAL     P11723      03641100            P03767 02060    P04021 02108

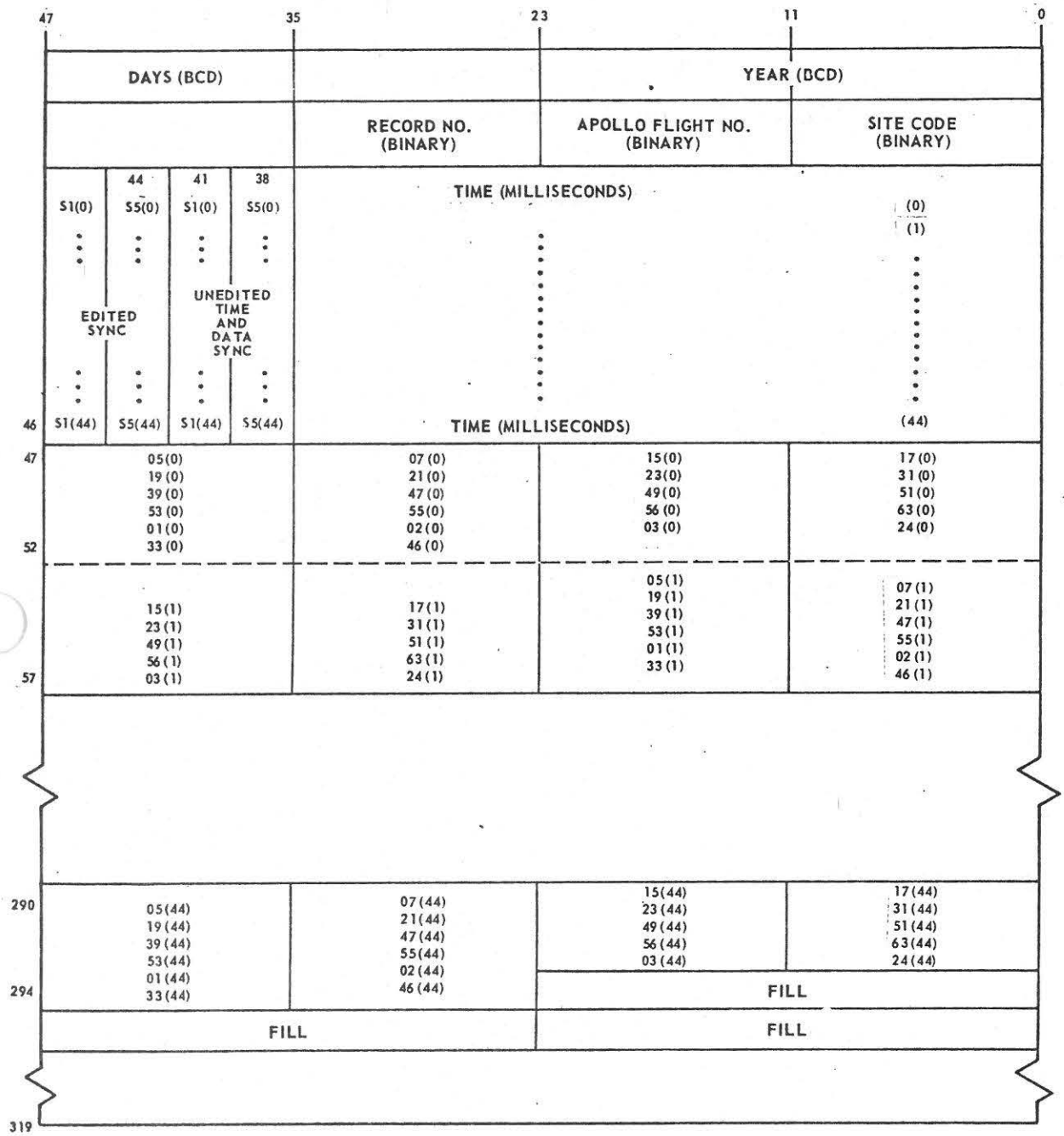
SYMBOLS NOT REFERENCED

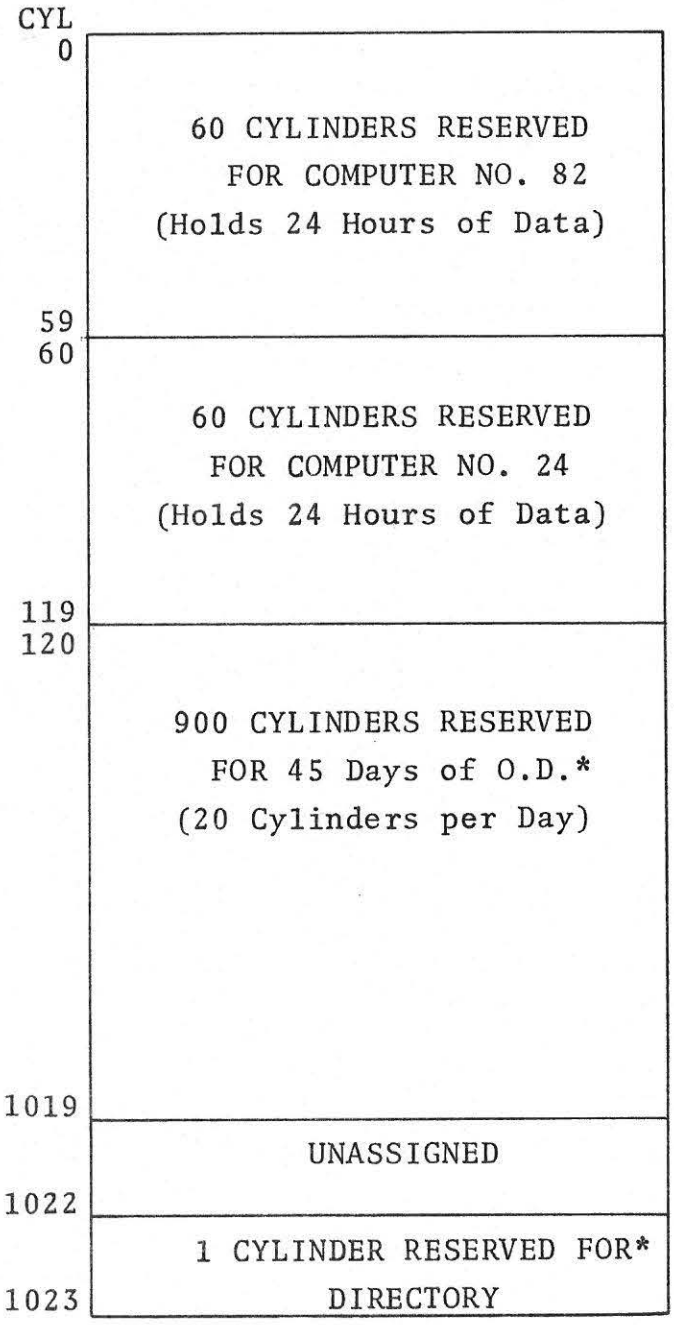
    *ALSEPPI  P00000    CMOD    P05474    HFLTEMP  P04717    LSMTEMP  P04276    SWSTEMP  P01772
```

ATTACHMENT 6

INPUT DATA DESCRIPTIONS

Format for OD Record





*Inputs to ALSEPPI.

Disk Directory

Disk cylinder 1023

Word	Day (BCD)	Flight (octal)	Disk address (octal)	
1	00000000	00000000	01700000	1 (Entry)
4	00020210	00000016	02140000	2
7	00020204	00000016	02400000	3
	⋮	⋮	⋮	
	⋮	⋮	⋮	
	00020211	00000017	17240000	44
133	00020007	00000020	17500000	45

DISK DIRECTORY

FILE 1, RECORD 1, 160 BIN WORDS.

00000	00000000	00000000	01700000	00000000	00000000	02140000	00000000	00000000	02400000	00020211
00012	00000016	02540000	00020211	00000014	03100000	00020005	00000020	03340000	00020006	00000017
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00036	00020210	00000017	05000000	00020207	00000020	05240000	00020207	00000017	05500000	00000000
00050	00000000	05740000	00000000	00000000	06200000	00000000	00000000	06440000	00020206	00000020
00062	06700000	00000000	00000000	07140000	00000000	00000000	07400000	00020207	00000014	07640000
00074	00020206	00000017	10100000	00000000	00000000	10340000	00000000	00000000	10600000	00020003
00106	00000017	11040000	00020204	00000016	11300000	00000000	00000000	11540000	00000000	00000000
00120	12000000	00000000	00000000	12240000	00020203	00000015	12500000	00020207	00000016	12740000
00132	00000000	00000000	13200000	00020203	00000014	13440000	00020202	00000014	13700000	00020205
00144	00000017	14140000	00020202	00000015	14400000	00020300	00000014	14640000	00020004	00000017
00156	15100000	00020005	00000017	15340000	00020201	00000016	15600000	00020201	00000014	16040000
00170	00020005	00000020	16300000	00020211	00000017	16540000	00020211	00000020	17000000	00020300
00202	00000020	17240000	00020007	00000020	17500000	00000000	00000000	00000000	00000000	00000000
00214	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
00226	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000

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ALSEPPI INPUT SAMPLE (day 226 from disk)

FILE 1, RECORD 1, 640 BIN WORDS.

00000	00020206	00000792	00000000	00200006	37772220	16423702	77772220	16425036	77772220	16426172	
00012	77772220	16427326	77772220	16430461	77772220	16431615	77772220	16432750	77772220	16434104	
00024	77772220	16435240	77772220	16436374	77772220	16437527	77772220	16440663	77772220	16442017	
00036	77772220	16443153	77772220	16444306	77772220	16445442	77772220	16446576	77772220	16447732	
00050	77772220	16451005	77772220	16452221	77772220	16453355	77772220	16454511	77772220	16455644	
00062	77772220	16457000	77772220	16460134	77772220	16461267	77772220	16462423	77772220	16463557	
00074	77772220	16464713	77772220	16466047	77772220	16467202	77772220	16470336	77772220	16471472	
00106	77772220	16472625	77772220	16473761	77772220	16475115	77772220	16476251	77772220	16477404	
00120	77772220	16500540	77772220	16501674	77772220	16503030	77772220	16504163	77772220	16505317	
00132	77772220	16506453	77772220	16507606	07440000	00000310	45440304	77740000	00000000	03104544	
00144	03040000	00000000	70440354	27703660	04400000	13600000	00000304	45440304	77740000	00000000	
00156	03044544	03040000	00000000	70440354	30003664	03540000	20440000	00000304	45440304	77740000	
00170	00000000	03003550	03040000	00000000	70440354	30103664	15600000	32000000	00000300	45500304	
00202	77740000	00000000	03004550	03040000	00000000	70440354	30203670	00000000	66340000	00000300	
00214	45500304	77740000	00000000	03004550	03040000	00000000	70440354	30303660	00000000	23740000	
00226	00000300	45500304	77740000	00000000	03004550	03100000	00000000	70440354	30403664	00140000	
00240	24740000	00000300	45500310	77740000	00000000	03004550	03100000	00000000	70440354	30503664	
00252	00000000	03400000	00000300	45500310	77740000	03000000	03004550	03100000	00000000	70440354	
00264	30603664	10200000	07400000	00000300	45500310	77740000	00000000	03004550	03100000	00000000	
00276	70440354	30703664	03400000	15740000	00000274	45500310	77740000	00000000	02744550	03100000	
00310	00000000	70440354	31003664	00340000	20540000	00000274	45500310	77740000	00000000	02744550	
00322	03100000	00000000	70440354	31103664	00000000	32740000	00000274	45500310	77740000	00000000	
00334	02744550	03100000	00000000	70440354	31203664	00000000	26240000	00000274	45500310	77740000	
00346	00000000	02744550	03100000	00000000	70440354	31303664	00000000	23700000	00000274	45500310	
00360	77740000	00000000	02704550	03100000	00000000	70440354	31403660	03200000	25000000	00000270	
00372	45500310	77740000	00000000	02704550	03140000	00000000	70440354	31503664	07000000	03400000	
00404	00000270	45500314	77740000	00000000	02704550	03140000	00000000	70440354	31603664	03600000	
00416	07440000	00000270	45500314	77740000	00000000	02704550	03140000	00000000	70440354	31703660	
00430	03400000	15600000	00000270	45500314	77740000	00000000	02704550	03140000	00000000	70440354	
00442	32003660	03600000	20440000	00000270	45500314	77740000	00000000	02644550	03140000	00000000	
00454	70440354	32103664	13540000	32000000	00000264	45500314	77740000	00000000	02644550	03140000	
00466	00000000	70440354	32203664	00400000	00340000	00000264	45500314	77740000	00000000	02644550	
00500	03140000	00000000	70440354	32303660	00000000	23740000	00000264	45500314	77740000	00000000	
00512	02644550	03140000	00000000	70440354	32403660	03000000	25140000	00000260	45500314	77740000	
00524	00000000	02644544	03140000	00000000	70440354	32503664	00000000	03400000	00000260	45440314	
00536	77740000	00000000	02604544	03140000	00000000	70440354	32603664	01040000	07400000	00000260	
00550	45440314	77740000	00000000	02604544	03140000	00000000	70440354	32703670	05140000	15740000	
00562	00000260	45440314	77740000	00000000	02604544	03140000	00000000	70440354	33003664	06300000	
00574	20540000	00000260	45440314	77740000	00000000	02604544	03140000	00000000	70440354	33103660	
00606	00000000	32740000	00000260	45440314	77740000	00000000	02604544	03140000	00000000	70440354	
00620	20003664	00000000	26240000	00000260	45440314	77740000	00000000	02604540	03140000	00000000	
00632	70440354	20143664	14000000	23700000	00000260	45440314	77740000	00000000	02604540	03140000	
00644	00000000	70440354	20203660	00640000	24000000	00000260	45440314	77740000	00000000	02604540	
00656	03140000	00000000	70440354	20303660	17100000	03400000	00000260	45440310	77740000	00000000	
00670	02644540	03140000	00000000	70440354	20403664	02600000	07440000	00000260	45340310	77740000	
00702	00000000	02644534	03100000	00000000	70440354	20503664	14500000	15600000	00000264	45340310	
00714	77740000	00000000	02644534	03100000	00000000	70440354	20603660	11240000	20440000	00000264	
00726	45340310	77740000	00000000	02644540	03100000	00000000	70440354	20703660	00300000	32000000	
00740	00000264	45400310	77740000	00000000	02644540	03100000	00000000	70440354	21003664	10240000	
00752	66340000	00000264	45400310	77740000	00000000	02644540	03100000	00000000	70440354	21103664	
00764	02400000	23740000	00000264	45400310	77740000	00000000	02644540	03100000	00000000	70440354	
00776	21203664	00000000	24740000	00000264	45400314	77740000	00000000	02644540	03140000	00000000	
01010	70440354	21343660	01000000	03400000	00000264	45400314	77740000	00000000	02644540	03140000	
01022	00000000	70440354	21403664	00000000	07400000	00000264	45400314	77740000	00000000	02644540	
01034	03140000	00000000	70440354	21503660	00040000	13740000	00000264	45400314	77740000	00000000	
01046	02644540	03140000	00000000	70440354	21603660	00000000	20540000	00000264	45400314	77740000	

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01060	00000000	02644540	03140000	00000000	70440354	21703664	05300000	32740000	00000264	45400314
01072	77740000	00000000	02644540	03140000	00000000	70440354	22003664	07400000	26240000	00000264
01104	45400314	77740000	00000000	02644540	03140000	00000000	70440354	22103660	02300000	00000000
01116	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
01130	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
01142	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
01154	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
01166	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000

FILE 1* RECORD 2* 640 BIN WORDS.

00000	00020206	00000702	00000001	00200006	77772220	16516742	77772220	16512076	77772220	16513231
00012	77772220	16514366	77772220	16515521	77772220	16516656	77772220	16520011	77772220	16521144
00024	77772220	16522300	77772220	16523434	77772220	16524567	77772220	16525723	77772220	16527057
00036	77772220	16530213	77772220	16531346	77772220	16532502	77772220	16533636	77772220	16534772
00050	77772220	16536125	77772220	16537261	77772220	16540415	77772220	16541551	77772220	16542704
00062	77772220	16544040	77772220	16545174	77772220	16546327	77772220	16547463	77772220	16550617
00074	77772220	16551753	77772220	16553106	77772220	16554242	77772220	16555376	77772220	16556532
00106	77772220	16557065	77772220	16560021	77772220	16562155	77772220	16563310	77772220	16564444
00120	77772220	16565600	77772220	16566734	77772220	16570067	77772220	16571223	77772220	16572357
00132	77772220	16573513	77772220	16574646	23700000	03000264	45400314	77740000	00000000	02644540
00144	03140000	00000000	70440354	22203660	05240000	24000000	00000254	45400314	77740000	00000000
00156	02644540	03140000	00000000	70440354	22303660	04740000	03400000	00000260	45400314	77740000
00170	00000000	02604540	03140000	00000000	70440354	22403660	15040000	07440000	00000260	45400314
00202	77740000	00000000	02544544	03200000	00000000	70440354	22503660	02740000	15600000	00000254
00214	45440320	77740000	00000000	02504540	03200000	00000000	70440354	22603660	00000000	20440000
00226	00000250	45400320	77740000	00000000	02444540	03200000	00000000	70440354	22703664	00140000
00240	32600000	00000244	45400320	77740000	00000000	02404540	03200000	00000000	70440354	23003660
00252	00200000	66340000	00000240	45340320	77740000	00000000	02404534	03200000	00000000	70440354
00264	23103660	00000000	23740000	00000240	45340320	77740000	00000000	02404534	03200000	00000000
00276	70440354	23203664	11500000	24740000	00000240	45300314	77740000	00000000	02404530	03140000
00310	00000000	70440354	23303660	02000000	03400000	00000240	45300314	77740000	00000000	02444530
00322	03140000	00000000	70440354	23403664	02440000	07400000	00000244	45300314	77740000	00000000
00334	02444524	03140000	00000000	70440354	23503660	00000000	15740000	00000244	45240314	77740000
00346	00000000	02444524	03140000	00000000	70440354	23603664	11540000	20540000	00000244	45240314
00360	77740000	00000000	02444524	03140000	00000000	70440354	23703664	00000000	32740000	00000250
00372	45240310	77740000	00000000	02504524	03100000	00000000	70440354	24003664	00000000	26240000
00404	00000250	45200310	77740000	00000000	02504520	03100000	00000000	70440354	24103660	02440000
00416	23700000	00000254	45200310	77740000	00000000	02444520	03100000	00000000	70440354	24203660
00430	02600000	24000000	00000254	45200310	77740000	00000000	02544520	03100000	00000000	70440354
00442	24303660	15240000	03400000	00000260	45200310	77740000	00000000	02604520	03100000	00000000
00454	70440354	24403660	02740000	07440000	00000260	45200310	77740000	00000000	02604520	03100000
00466	00000000	70440354	24503660	12000000	15600000	00000260	45200310	77740000	00000000	02604520
00500	03100000	00000000	70440354	24603660	00140000	20440000	00000260	45200310	77740000	00000000
00512	02604524	03100000	00000000	70440354	24703660	00140000	32600000	00000260	45240310	77740000
00524	00000000	02604524	03100000	00000000	70440354	25003660	00000000	66340000	00000260	45240310
00536	77740000	00000000	02604524	03100000	00000000	70440354	25103660	00040000	23740000	00000260
00550	45240314	77740000	00000000	02604524	03140000	00000000	70440354	25203660	02000000	25140000
00562	00000250	45300314	77740000	00000000	02604530	03140000	00000000	70440354	25303660	02200000
00574	03400000	00000250	45300314	77740000	00000000	02604530	03140000	00000000	70440354	25403660
00606	00000000	07400000	00000250	45300314	77740000	00000000	02604530	03140000	00000000	70440354
00620	25503660	00000000	15740000	00000250	45300314	77740000	00000000	02604530	03140000	00000000
00632	70440354	25603660	02740000	20540000	00000254	45300314	77740000	00000000	02544530	03140000
00644	00000000	70440354	25703664	03200000	32740000	00000254	45300314	77740000	00000000	02544530
00656	03140000	00000000	70440354	26003664	02600000	26240000	00000254	45300314	77740000	00000000
00670	02544530	03140000	00000000	70440354	26103660	02740000	23700000	00000254	45300314	77740000
00702	00000000	02504530	03140000	00000000	70440354	26203664	14540000	25000000	00000250	45240314
00714	77740000	00000000	02504524	03140000	00000000	70440354	26303660	07000000	03400000	00000250
00726	45240314	77740000	00000000	02504524	03140000	00000000	70440354	26403660	13700000	07440000

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00740	00000254	45200314	77740000	00000000	02544520	03100000	00000000	70440354	25503664	00140000
00752	15500000	00000255	45200310	77740000	00000000	02504514	03100000	00000000	70440354	26603664
00764	12000000	20440000	00000254	45140304	77740000	00000000	02644514	03040000	00000000	70440354
00776	25703660	00000000	32600000	00000264	45140304	77740000	00000000	02704514	03000000	00000000
01010	70440354	27003664	10200000	06340000	00000270	45140300	77740000	00000000	02744514	03000000
01022	00000000	70440354	27103664	00000000	23740000	00000274	45140300	77740000	00000000	02744514
01034	03000000	00000000	70440354	27203660	03140000	24740000	00000300	45140300	77740000	00000000
01046	03004520	03000000	00000000	70440354	27303664	03040000	03400000	00000300	45200304	77740000
01060	00000000	03004520	03040000	00000000	70440354	27403660	11600000	07400000	00000300	45200304
01072	77740000	00000000	03004524	03040000	00000000	70440354	27503664	03100000	15740000	00000304
01104	45240304	77740000	00000000	03044524	03040000	00000000	70440354	27603660	02700000	00000000
01116	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
01130	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
01142	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
01154	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
01166	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000

FILE 1, RECORD 3, 640 BIN WORDS.

00000	00020200	00000702	00000002	00200000	77772220	16570002	77772220	16577136	77772220	16600271
00012	77772220	16601425	77772220	16602561	77772220	16603715	77772220	16605051	77772220	16606204
00024	77772220	16607340	77772220	16610474	77772220	16611627	77772220	16612763	77772220	16614117
00036	77772220	16615253	77772220	16616406	77772220	16617542	77772220	16620676	77772220	16622031
00050	77772220	16623165	77772220	16624321	77772220	16625455	77772220	16626610	77772220	16627744
00062	77772220	16631100	77772220	16632234	77772220	16633367	77772220	16634523	77772220	16635657
00074	77772220	16637013	77772220	16640146	77772220	16641302	77772220	16642436	77772220	16643571
00106	77772220	16644725	77772220	16646061	77772220	16647215	77772220	16650350	77772220	16651504
00120	77772220	16652040	77772220	16653174	77772220	16654327	77772220	16656263	77772220	16657417
00132	77772220	16660552	77772220	16661706	20540000	00000304	45240304	77740000	00000000	03044524
00144	03040000	00000000	70440354	27703664	04400000	32740000	00000310	45240304	77740000	00000000
00156	03044524	03040000	00000000	70440354	30003664	03540000	26240000	00000310	45240304	77740000
00170	00000000	03044524	03040000	00000000	70440354	30103664	15600000	23700000	00000310	45300304
00202	77740000	00000000	03044530	03040000	00000000	70440354	30203660	00000000	25000000	00000310
00214	45300304	77740000	00000000	03044530	03040000	00000000	70440354	30303660	00000000	03400000
00226	00000304	45300304	77740000	00000000	03044534	03100000	00000000	70440354	30403664	00140000
00240	07440000	00000304	45340310	77740000	00000000	03044534	03100000	00000000	70440354	30503660
00252	03740000	15600000	00000300	45340310	77740000	00000000	03004534	03100000	00000000	70440354
00264	30603664	10200000	20440000	00000300	45340310	77740000	00000000	02744540	03140000	00000000
00276	70440354	30703664	03400000	32600000	00000274	45340314	77740000	00000000	02704540	03140000
00310	00000000	70440354	31003660	06340000	06340000	00000270	45400314	77740000	00000000	02704540
00322	03140000	00000000	70440354	31103664	00000000	23740000	00000264	45400314	77740000	00000000
00334	02644540	03140000	00000000	70440354	31203664	00000000	24740000	00000264	45400314	77740000
00346	00000000	02644534	03140000	00000000	70440354	31303664	00000000	03400000	00000264	45340314
00360	77740000	00000000	02644534	03140000	00000000	70440354	31403660	03200000	07400000	00000264
00372	45340314	77740000	00000000	02644534	03140000	00000000	70440354	31503660	07000000	15740000
00404	00000264	45340314	77740000	00000000	02644534	03140000	00000000	70440354	31603664	03600000
00416	20540000	00000264	45340314	77740000	00000000	02644534	03140000	00000000	70440354	31703660
00430	07300000	32740000	00000260	45340314	77740000	00000000	02604534	03140000	00000000	70440354
00442	32603664	03600000	26240000	00000260	45340314	77740000	00000000	02644534	03140000	00000000
00454	70440354	32103670	13340000	23700000	00000264	45300314	77740000	00000000	02644530	03140000
00466	00000000	70440354	32203670	00340000	24600000	00000264	45300314	77740000	00000000	02644530
00500	03140000	00000000	70440354	32303660	00000000	03400000	00000264	45300314	77740000	00000000
00512	02644530	03140000	00000000	70440354	32403660	00000000	07440000	00000264	45300314	77740000
00524	00000000	02604530	03140000	00000000	70440354	32503664	00000000	15600000	00000260	45300314
00536	77740000	00000000	02604530	03140000	00000000	70440354	32603664	01040000	20440000	00000260
00550	45300314	77740000	00000000	02544530	03140000	00000000	70440354	32703664	05140000	32600000
00562	00000254	45300314	77740000	00000000	02544530	03140000	00000000	70440354	33003660	06300000
00574	05340000	00000250	45300314	77740000	00000000	02504530	03140000	00000000	70440354	33103664
00606	00000000	23740000	00000250	45300314	77740000	00000000	02504524	03140000	00000000	70440354

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FORM 1411-3

ATTACHMENT 7

OUTPUT FORMATS

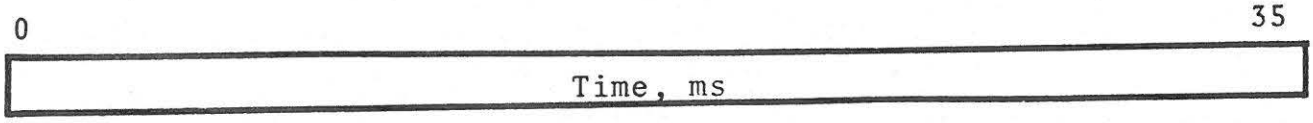
Heat Flow Experiment Digital Tape Description

I. Label Record (appears twice on tape)

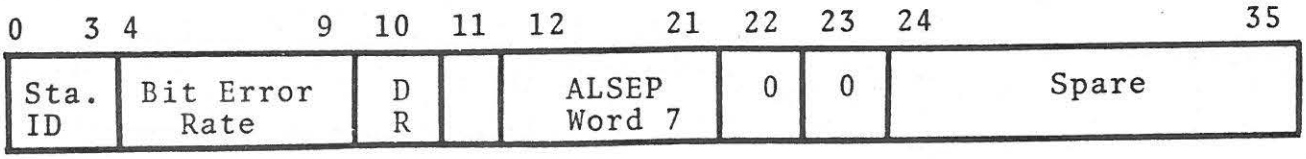
Word	Parameter
1	Experiment Identification (HEATFL)
2	ALSEP Number (ALSP 17)
3	Mission Identification (A/S512)
4	Year data Acquired (BB1973)

II. Data Record Format, 3 Words/Logical Record

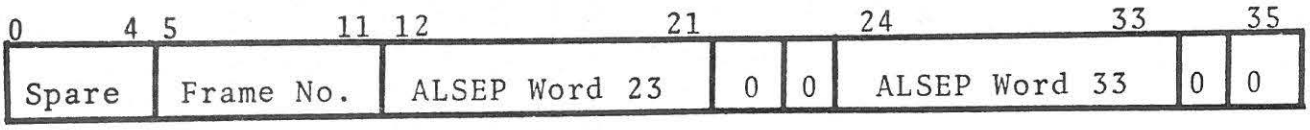
Word 1:



Word 2 – station ID, bit error rate, data rate, command verification:



Word 3 – ALSEP frame number, ALSEP words 23, 33:



180 logical records/physical record

Finish filling last record of data with zeros; last record filled with octal 1's followed by EOF. Binary tape, 800 bpi, seven-track, standard IBM EOF.

NOTE: Word 23 is valid on frames 0-15; word 33 is invalid. Word 33 is valid on frames 29, 45, 55, 57, 74, and 75; word 23 is invalid. All other frames are omitted.

Label records and data records written in binary.

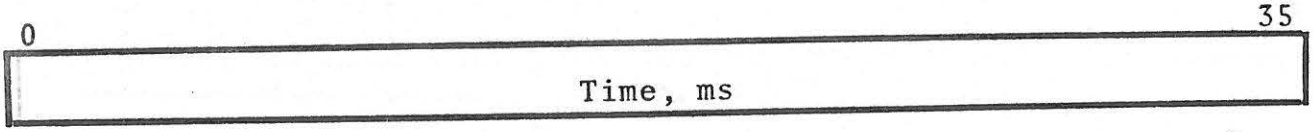
Lunar Ejecta and Meteorite Experiment Digital Tape Description

I. Label Record (appears twice on tape)

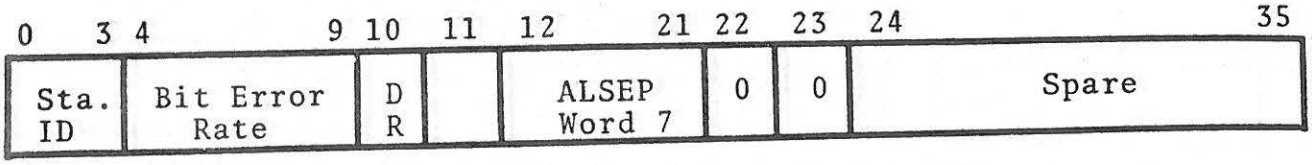
Word	Parameter
1	Experiment Identification (LEAMEX)
2	ALSEP Number (ALSP 17)
3	Mission Identification (A/S512)
4	Year data Acquired (BB1973)

II. Data Record Format, ~~3~~ 4 Words/Logical Record

Word 1:



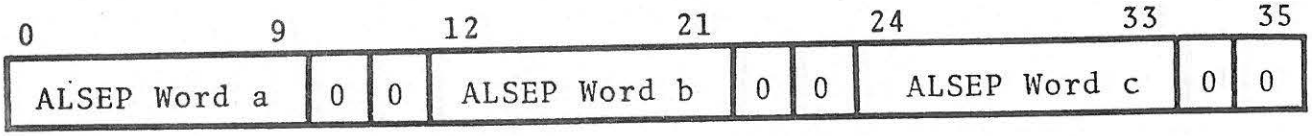
Word 2 – station ID, bit error rate, data rate, command verification:



Word 3 – ALSEP words 1, 2, 3

Word 4 – ALSEP words 31, 33, 39

Packed IBM word format for ALSEP words:



90 logical records/physical record

Finish filling last record of data with zeros; last record on tape filled with octal 1's followed by EOF.

Binary tape, 800 bpi, seven-track, standard IBM EOF.

Label records and data records written in binary.

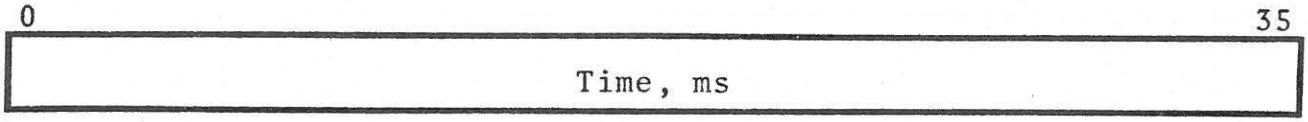
Lunar Mass Spectrometer Experiment Digital Tape Description

I. Label Record (appears twice on tape)

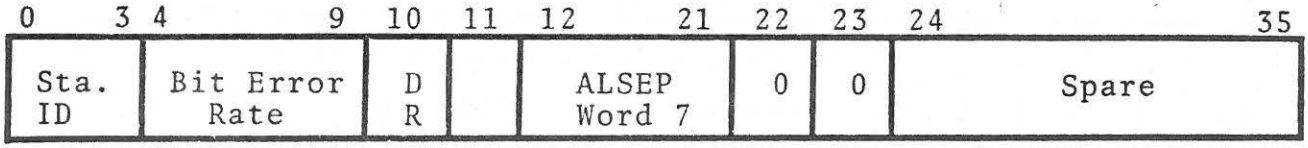
Word	Parameter
1	Experiment Identification (LMSEXP)
2	ALSEP Number (ALSP 17)
3	Mission Identification (A/S512)
4	Year data Acquired (BB1973)

II. Data Record Format, 5 Words/Logical

Word 1:



Word 2 – station ID, bit error rate, data rate, command verification:

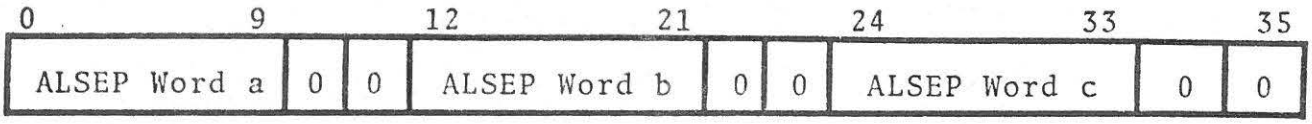


Word 3 – ALSEP words 1, 2, 3

Word 4 – ALSEP words 5, 17, 19

Word 5 – ALSEP words 21, 33, b

Packed IBM word format for ALSEP WORDS:



90 logical records/physical record

Finish filling last record of data with zeros; last record on tape filled with octal 1's followed by EOF.

Binary tape, 800 bpi, seven-track, standard IBM EOF.

Label records and data records written in binary.

Engineering and Housekeeping Data Digital Tape Description

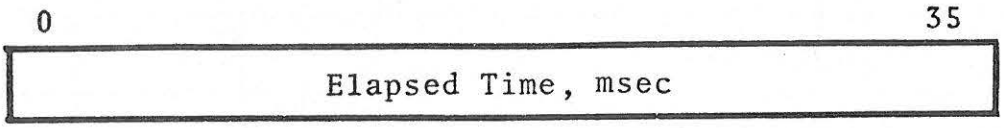
The engineering data consists of housekeeping measurements from the ALSEP system. This data appears once each ALSEP frame. The engineering word recycles every 90 frames.

I. Label Record (appears twice on tape)

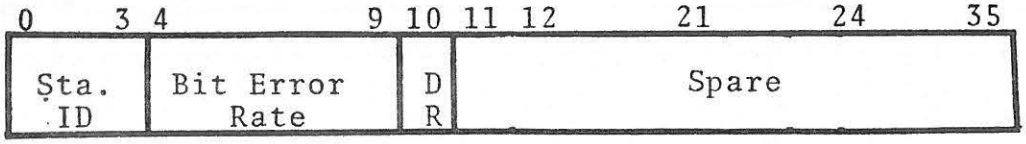
Word	Parameter	Mode
1	Experiment Identification (ENGRNG)	BCD
2	ALSEP Number (ALSEPX)	BCD
3	Mission Identification (A/Sxxx)	BCD
4	Spare	BCD

II. Data Record Format, 4 Words/Logical Record

Word 1:



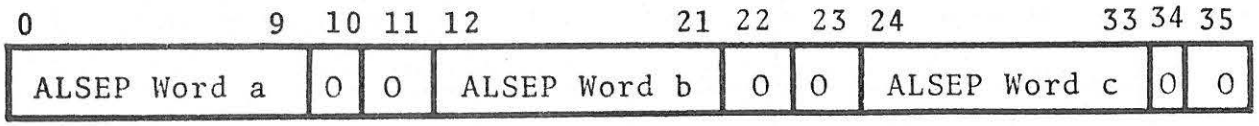
Word 2 - station ID, bit error rate, data rate (1 = 1060 bps; 0 = 530 bps):



Word 3 - words 1, 2, 3 of each ALSEP frame

Word 4 - words 33 and 7 of each ALSEP frame

Packed IBM word format for ALSEP data words:



180 logical records/physical record

Finish filling last record of data with zeros; last record filled with octal 1's followed by EOF. Binary tape, 800 bpi, seven-track, standard IBM EOF.

Label records and data records written in binary.

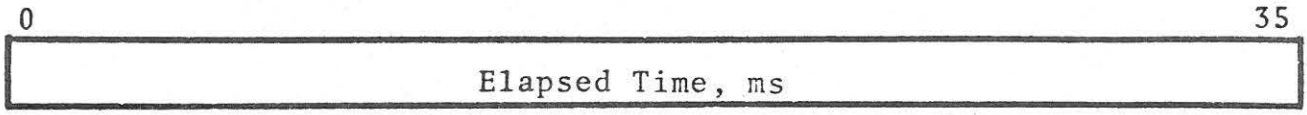
Lunar Surface Magnetometer Digital Tape Description

I. Label Record (appears twice on tape)

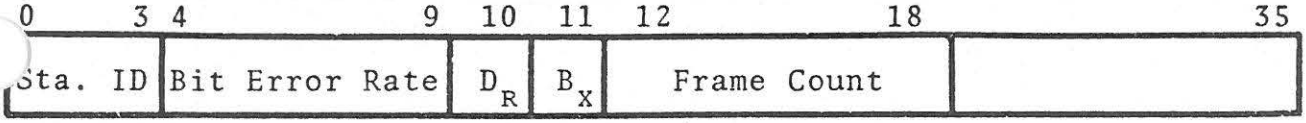
Word	Parameter	Mode
1	Experiment Identification (MAGEXP)	BCD
2	ALSEP Number (ALSEPX)	BCD
3	Mission Identification (A/Sxxx)	BCD
4	Spare	BCD

II. Data Record Format, 4 Words/Logical Record

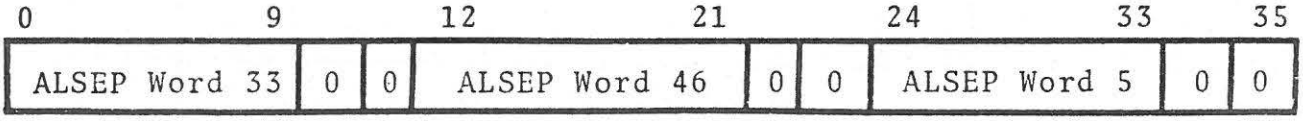
Word 1:



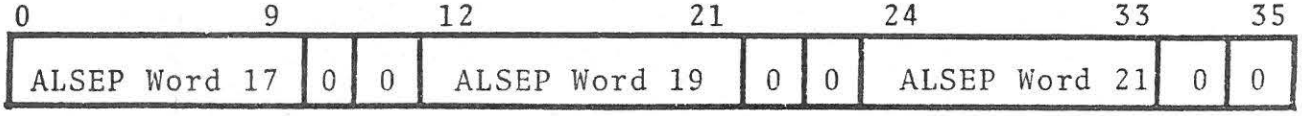
Word 2:



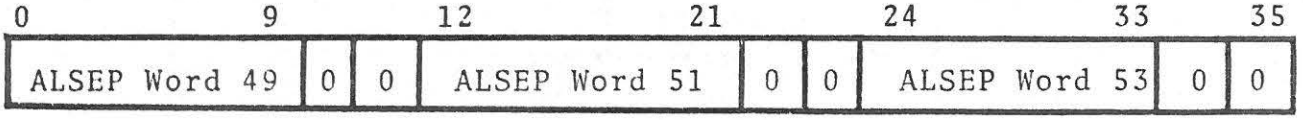
Word 3:



Word 4:



Word 5:



90 logical records/physical record

Finish filling last record of data with zeros; last record filled with all 1's followed by EOF. Binary tape, 800 bpi, seven-track, standard IBM EOF.

Frame marker 1 for first ALSEP frame counter 1; 0 for all others.

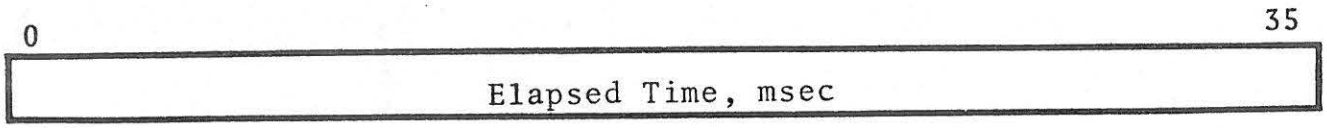
Solar Wind Spectrometer Digital Tape Description

I. Label Record (appears twice on tape)

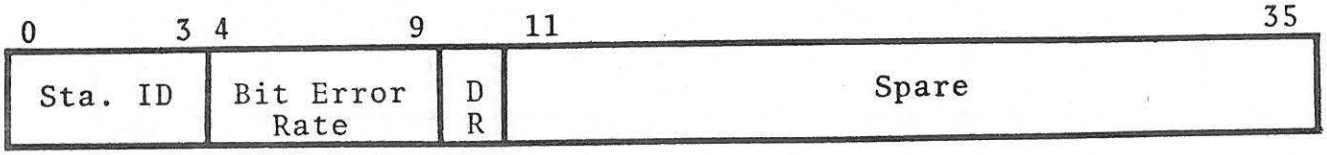
Word	Parameter	Mode
1	Experiment Identification (SOLWDS)	BCD
2	LSEP Number (ALSEPX)	BCD
3	Mission Identification (A/Sxxx)	BCD
4	Spare	BCD

II. Data Record Format, 5 Words/Logical Record

Word 1:



Word 2 – station ID, bit error rate, data rate (1 = 1060 bps; 0 = 530 bps):

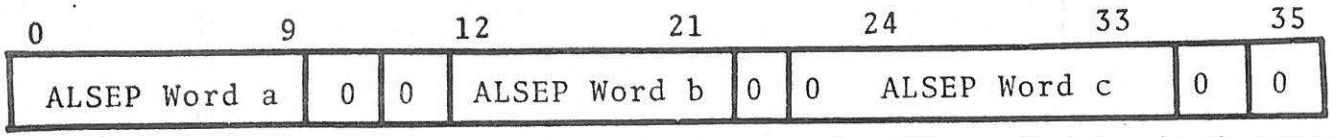


Word 3 – words 1, 2, 3 of each ALSEP frame

Word 4 – words 33, 7, 23 of each ALSEP frame

Word 5 – words 46, 39, 55 of each ALSEP frame

Packed IBM word format for ALSEP data words:



88 logical records/physical record; 440 words/physical record

Finish filling last record of data with zeros; last record filled with all 1's followed by EOF. Binary tape, 800 bpi, seven-track, standard IBM EOF.

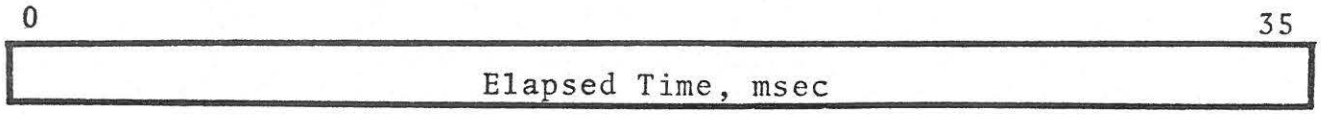
Suprathermal Ion Detector Digital Tape Description

I. Label Record (appears twice on tape)

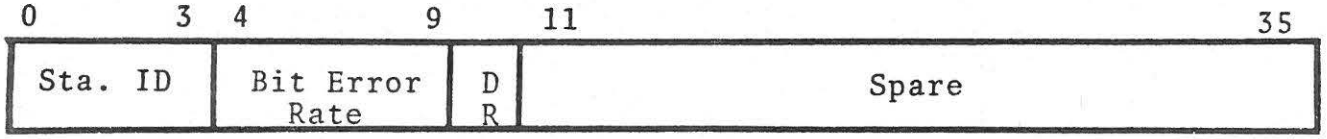
Word	Parameter	Mode
1	Experiment Identification (SIDE)	BCD
2	ALSEP Number (ALSEPX)	BCD
3	Mission Identification (A/Sxxx)	BCD
4	Spare	BCD

II. Data Record Format, 6 Words/Logical Record

Word 1:



Word 2 – station ID, bit error rate, data rate (1 = 1060 bps; 0 = 530 bps):



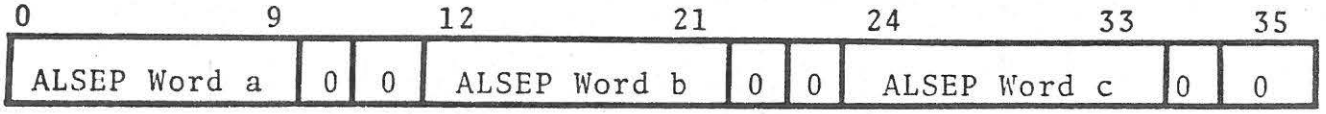
Word 3 – words 1, 2, 3 of each ALSEP frame

Word 4 – words 15, 31, 33 of each ALSEP frame

Word 5 – words 46, 47, 56 of each ALSEP frame

Word 6 – word 63 of each ALSEP frame

Packed IBM word format for ALSEP data words:



90 logical records/physical record

Finish filling last record of data with zeros; last record filled with all 1's followed by EOF. Binary tape, 556 bpi, seven-track, standard IBM EOF.

Cold Cathode Ion Gage Digital Tape Description

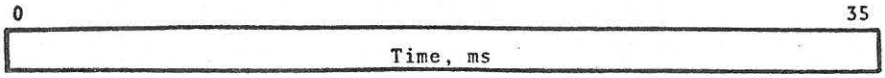
Non-FORTRAN Binary Tape (36 Bits per Word)

I. Master Header Record (appears twice on tape)

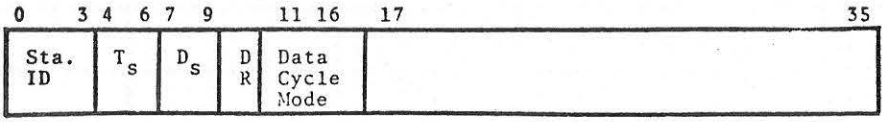
Word	Contents	Mode
1	Experiment Name (CCGEbb)	BCD
2	ALSEP Number (ALSEPX)	BCD
3	Spacecraft ID (A/Sxxx)	BCD
4	Date Tape Was Generated (YRMODY)	BCD

II. Data Record

Word 1:

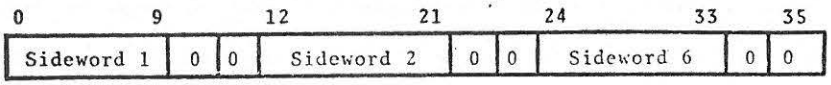


Word 2:



Bits 0-3: Station ID
Bits 4-6: Time sync quality code (7 = best; 0 = worst)
Bits 7-9: Data sync quality code (7 = best; 0 = worst)
Bit 10: Data rate (1 = 1060 bps; 0 = 530 bps)
Bits 11-16: Data cycle mode
Bits 17-35: Spare (will be zeros)

Word 3:



Bits 0-11: Sideword 1 as follows:
- Bit 0: Parity bit for the previous frame
- Bits 1-2: Two zero bits for even frame sync (frame sync bits)
- Bits 3-9: Contents of SIDE frame counter
- Bits 10-11: Will always be zeros

Bits 12-23: Sideword 2 as follows:
- Bits 12-13: Will always be zeros
- Bits 14-21: CCGE data
- Bits 22-23: Will always be zeros

Bits 24-35: Sideword 6 as follows:
- Bit 24: Parity bit for the previous frame
- Bits 25-26: Two 1 bits for odd frame sync (frame sync bits)
- Bit 27: Will always be zero
- Bits 28-33: CCGE data
- Bits 34-35: Will always be zeros

Words 1-3 will repeat 90 times within a record to produce a 270-word record. Incomplete records will have the remaining portion filled with zeros. The last record on tape will contain all 1's (001 bit configuration) followed by an end-of-file mark.

800 bps, seven-track, standard IBM EOF.

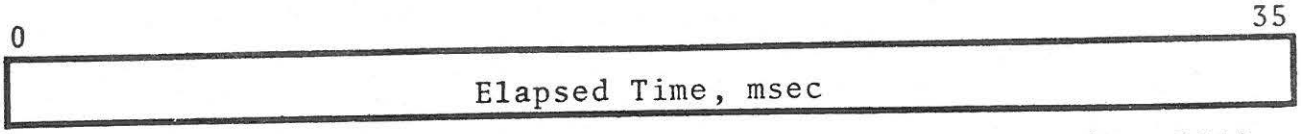
Charged Particle Digital Tape Description[1]

I. Label Record (appears twice on tape)

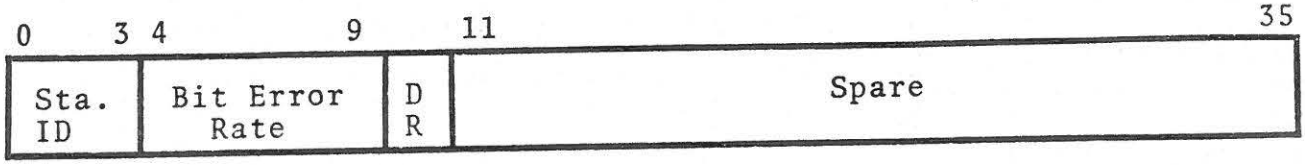
Word	Parameter	Mode
1	Experiment Identification (CPLSPE)	BCD
2	ALSEP Number (ALSEPX)	BCD
3	Mission Identification (A/Sxxx)	BCD
4	Spare	BCD

II. Data Record Format, 6 Words/Record

Word 1:



Word 2 – station ID, bit error rate, data rate (1 = 1060 bps; 0 = 530 bps):



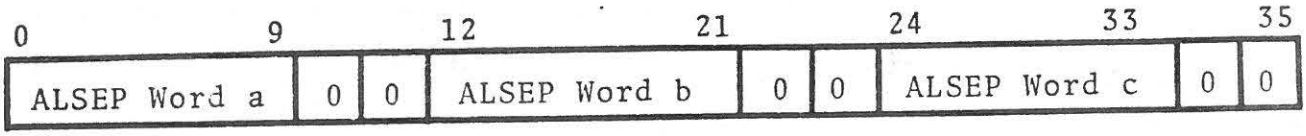
Word 3 – ALSEP words 1, 2, 3

Word 4 – ALSEP words 7, 17, 19

Word 5 – ALSEP words 23, 39, 55

Word 6 – ALSEP words 33, 5

Packed IBM word format for ALSEP data words:



90 logical records/physical record

Finish filling last record of data with zeros; last record filled with all 1's followed by EOF. Binary tape, 556 bpi, seven-track, standard IBM EOF.

[1]Principal Engineer, Dr. David Reasoner, Department of Space Science, Rice University, Houston, Texas 77001

TYPEWRITER OUTPUT

```
  DATE 092672
  SET SJ6
   SEQUENCE,770
   JOB,Q776,RODRIGUEZ
   RUN,15
INVALID EXPERIMENT CODE....SIDE
CARD ERROR ABORT-
```

```
  DATE 092672
  SET SJ6
   SEQUENCE,770
   JOB,Q776,RODRIGUEZ
   RUN,15
TAPE UNIT 02    ENGRNG
TAPE UNIT 03    MAGEXP
 END OF DAY 0226 ...
 END OF DAY 0227 ...
 END OF DAY 0228 ...
 END OF DAY 0229 ...
JOB COMPLETED ..... ALSEPPI
```

SUMMARY ON PRINTER

ALSEP PRINCIPAL INVESTIGATOR FORMAT PROCESSING - APOLLO 16

* DAY-0226 , 3172 RECORDS READ 0 LOST 0 REPEATS 0 SEEK ERRORS 0 RETRIES
FIRST TIME- 19599600158 LAST TIME- 19685999592

* DAY-0227 , 3171 RECORDS READ 0 LOST 0 REPEATS 0 SEEK ERRORS 0 RETRIES
FIRST TIME- 19686000196 LAST TIME- 19772399622

* DAY-0228 , 3138 RECORDS READ 0 LOST 0 REPEATS 0 SEEK ERRORS 0 RETRIES
FIRST TIME- 19772400226 LAST TIME- 19858799745

•• MAGEXP ••• APOLLO 16 4740 RECORDS WRITTEN 1 SKIPS ON TAPE 3

* DAY-0229 , 3180 RECORDS READ 0 LOST 0 REPEATS 0 SEEK ERRORS 0 RETRIES
FIRST TIME- 19858800354 LAST TIME- 19945199855

•• ENGRNG ••• APOLLO 16 3166 RECORDS WRITTEN 0 SKIPS ON TAPE 2

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ILE 1, RECORD 1, 6 BIN WORDS.

00000	44212725	57472143	62254724	21616205	01016060	01110702

ILE 1, RECORD 2, 6 BIN WORDS.

00000	44212725	57472143	62254724	21616205	01016060	01110702

ILE 1, RECORD 3, 675 BIN WORDS.

00000	22201642	50363002	40000000	03540000	15600304	4544[illegible]304	03044544	03042220	16426172	30024040	
00012	00001560	00002044	03044544	03040300	45500304	22201642	73263002	41000000	00000000	32600300	
00024	45500304	03004550	03042220	16430401	30024140	00000000	00006634	03004550	03040300	45500304	
00036	22201643	10153002	42000000	00140000	23740300	45500304	03004550	03102220	16432750	30024240	
00050	00000600	00002474	03004550	03100300	45500310	22201643	41043002	43000000	10200000	03400300	
00062	45500310	03004550	03102220	16435240	30024340	00000340	00000740	03004550	03100300	45500310	
00074	22201643	63743002	44000000	06340000	15740274	45500310	02744550	03102220	16437527	30024440	
00106	00000000	00002054	02744550	03100274	45500310	22201644	06633002	45000000	00000000	32740274	
00120	45500310	02744550	03102220	16442017	30024540	00000000	00002624	02744550	03100274	45500310	
00132	22201644	31533002	46000000	03260000	23700274	45500310	02704550	03102220	16444306	30024640	
00144	00000700	00002500	02704550	03100270	45500314	22201644	54423002	47000000	03000000	03400270	
00156	45500314	02704550	03142220	16446576	30024740	00000734	00000744	02704550	03140270	45500314	
00170	22201644	77323002	50000000	03600000	15600270	45500314	02704550	03142220	16451065	30025040	
00202	00001344	00002044	02704550	03140264	45500314	22201645	22213002	51000000	00400000	32600264	
00214	45500314	02644550	03142220	16453355	30025140	00000000	00006634	02644550	03140264	45500314	
00226	22201645	45113002	52000000	00000000	23740264	45500314	02644550	03142220	16455644	30025240	
00240	00000000	00002314	02604550	03140260	45440314	22201645	70003002	53000000	01040000	03400260	
00252	45440314	02604544	03142220	16460134	30025340	00000614	00000740	02604544	03140260	45440314	
00264	22201646	12673002	54000000	06300000	15740260	45440314	02604544	03142220	16462423	30025440	
00276	00000000	00002054	02604544	03140260	45440314	22201646	35573002	00000000	00000000	32740260	
00310	45440314	02604544	03142220	16464713	30030040	00001400	00002624	02604540	03140260	45400314	
00322	22201646	60473002	01000000	00640000	23700260	45400314	02604540	03142220	16467202	30020140	
00334	00001710	00002460	02604540	03140260	45400314	22201647	03363002	02000000	02000000	03400260	
00346	45400313	02604540	03102220	16471472	30020240	00001450	00000744	02604534	03100264	45340310	
00360	22201647	25253002	03000000	11240000	15000264	45340310	02644534	03102220	16473761	30020340	
00372	00000030	00002044	02644534	03100264	45400310	22201647	51153002	04000000	10240000	32600264	
00404	45400310	02644540	03102220	16479251	30020440	00000240	00006634	02644540	03100264	45400310	
00416	22201647	74043002	05000000	00000000	23740264	45400310	02644540	03102220	16500540	30020540	
00430	00000100	00002474	02644540	03140264	45400314	22201650	16743002	06000000	00000000	03400264	
00442	45400314	02644540	03142220	16503030	30020640	00000004	00000740	02644540	03140264	45400314	
00454	22201650	41633002	07000000	00000000	15740264	45400314	02644540	03142220	16505317	30020740	
00466	00000530	00002054	02644540	03140264	45400314	22201650	64533002	10000000	07400000	32740264	
00500	45400314	02644540	03142220	16507602	30021040	00000230	00002624	02644540	03140264	45400314	
00512	22201651	07423002	11000000	05240000	23700264	45400314	02644540	03142220	16510076	30021140	
00524	00000474	00002460	02644540	03140264	45400314	22201651	32313002	12000000	15040000	03400260	
00536	45400314	02604540	03142220	16514365	30021240	00000274	00000744	02604540	03140254	45440320	
00550	22201651	55213002	13000000	00000000	15600254	45440320	02504540	03202220	16516656	30021340	
00562	00000014	00002044	02504540	03200244	45400320	22201652	00113002	14000000	00200000	32600244	
00574	45400320	02404540	03202220	16521144	30021440	00000000	00006634	02404534	03200240	45340320	
00606	22201652	23003002	15000000	11500000	23740240	45340320	02404534	03202220	16523434	30021540	
00620	00000200	00002474	02404530	03140240	45300314	22201652	45673002	16000000	02440000	03400240	
00632	45300314	02444530	03142220	16525723	30021640	00000000	00000740	02444530	03140244	45240314	
00644	22201652	70573002	17000000	11540000	15740244	45240314	02444524	03142220	16530213	30021740	
00656	00000000	00002054	02444524	03140244	45240314	22201653	13463002	20000000	00000000	32740250	
00670	45240310	02504524	03102220	16532502	30022040	00000244	00002024	02504520	03100250	45200310	
00702	22201653	36363002	21000000	02600000	23700254	45200310	02544520	03102220	16534772	30022140	
00714	00001524	00002460	02544520	03100254	45200310	22201653	01253002	22000000	02740000	03400260	
00726	45200310	02604520	03102220	16537261	30022240	00001200	00000744	02604520	03100260	45200310	
00740	22201654	04153002	23000000	00140000	15600260	45200310	02604520	03102220	16541551	30022340	
00752	00000014	00002044	02604520	03100260	45240310	22201654	27043002	24000000	00000000	32600260	

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00764	45240310	02604524	03102220	16544040	30022440	00000004	00006634	02604524	03100260	45240310	
00776	22201654	51743002	25000000	02000000	23740260	45240314	02604524	03142220	16546327	30022540	
01010	00000220	00002514	02604530	03140260	45300314	22201654	74633002	26000000	00000000	03400260	
01022	45300314	02604530	03142220	16550617	30022640	00000000	00000740	02604530	03140260	45300314	
01034	22201655	17533002	27000000	02740000	15740260	45300314	02604530	03142220	16553106	30022740	
01046	00000320	00002054	02544530	03140254	45300314	22201655	42423002	30000000	02600000	32740254	
01060	45300314	02544530	03142220	16555376	30023040	00000270	00002624	02544530	03140254	45300314	
01072	22201655	05323002	31000000	14540000	23700254	45300314	02504530	03142220	16557665	30023140	
01104	00000700	00002500	02504524	03140250	45240314	22201656	10213002	32000000	13700000	03400250	
01116	45240314	02504524	03142220	16562155	30023240	00000014	00000744	02544520	03140254	45200310	
01130	22201656	33103002	33000000	12000000	15900290	45200310	02604514	03102220	16564444	30023340	
01142	00000000	00002044	02644514	03040264	45140304	22201656	56003002	34000000	10200000	32600264	
01154	45140304	02704514	03002220	16566734	30023440	00000000	00006634	02704514	03000274	45140300	
01166	22201657	00673002	35000000	03140000	23740274	45140300	02744514	03002220	16571223	30023540	
01200	00000504	00002474	03004514	03000300	45200300	22201657	23573002	36000000	11600000	03400300	
01212	45200304	03004520	03042220	16573513	30023640	00000310	00000740	03004520	03040300	45240304	
01224	22201657	46463002	37000000	02700000	15740304	45240304	03044524	03042220	16576002	30023740	
01236	00000440	00002054	03044524	03040304	45240304						

ILE 1, RECORD 4, 675 BIN WORDS.

00000	22201657	71363002	40000000	03540000	32740310	45240304	03104524	03042220	16600271	30024040	
00012	00001560	00002624	03104524	03040310	45240304	22201660	14253002	41000000	00000000	23700310	
00024	45300304	03104530	03042220	16602561	30024140	00000000	00002500	03104530	03040310	45300304	
00036	22201660	37153002	42000000	00140000	03400304	45300304	03044534	03102220	16605051	30024240	
00050	00000574	00000744	03044534	03100304	45340310	22201660	52043002	43000000	10200000	15600300	
00062	45340310	03004534	03102220	16607340	30024340	00000340	00002044	03004534	03100274	45400314	
00074	22201661	04743002	44000000	06340000	32000274	45400314	02704540	03142220	16611627	30024440	
00106	00000000	00002634	02704540	03140270	45400314	22201661	27633002	45000000	00000000	23740264	
00120	45400314	02644540	03142220	16614117	30024540	00000000	00002474	02644540	03140264	45340314	
00132	22201661	52533002	46000000	03200000	03400264	45340314	02644534	03142220	16616406	30024640	
00144	00000700	00000740	02644534	03140264	45340314	22201661	75423002	47000000	03600000	15740264	
00156	45340314	02644534	03142220	16620676	30024740	00000730	00002054	02644534	03140264	45340314	
00170	22201662	20313002	50000000	03600000	32740260	45340314	02604534	03142220	16623165	30025040	
00202	00001334	00002624	02604534	03140264	45340314	22201662	43213002	51000000	00340000	23700264	
00214	45300314	02644530	03142220	16625455	30025140	00000000	00002460	02644530	03140264	45300314	
00226	22201662	66103002	52000000	00000000	03400264	45300314	02644530	03142220	16627744	30025240	
00240	00000000	00000744	02644530	03140260	45300314	22201663	11003002	53000000	01040000	15600260	
00252	45300314	02604530	03142220	16632634	30025340	00000514	00002044	02604530	03140254	45300314	
00264	22201663	33673002	54000000	06300000	32000254	45300314	02544530	03142220	16634523	30025440	
00276	00000000	00002634	02504530	03140250	45300314	22201663	56573002	00000000	00000000	23740250	
00310	45300314	02504524	03142220	16637013	30030040	00001400	00002474	02444524	03140244	45240314	
00322	22201664	01463002	01000000	00640000	03400244	45240314	02444520	03142220	16641302	30020140	
00334	00001710	00000740	02444520	03140244	45200314	22201664	24363002	02000000	02600000	15740244	
00346	45200314	02444520	03142220	16643571	30020240	00001450	00002054	02444514	03140244	45140314	
00360	22201664	47253002	03000000	11240000	32740250	45140314	02504514	03102220	16646061	30020340	
00372	00000030	00002624	02504514	03100250	45140310	22201664	72153002	04000000	10200000	23700250	
00404	45140310	02504514	03102220	16650350	30020440	00000240	00002460	02504514	03100250	45140310	
00416	22201665	15043002	05000000	00000000	03400250	45100310	02544510	03102220	16652640	30020540	
00430	00000100	00000744	02544510	03100254	45100310	22201665	37743002	06000000	00000000	15600254	
00442	45100310	02604510	03102220	16655127	30020640	00000004	00002044	02604510	03100260	45100310	
00454	22201665	62533002	07000000	00000000	32000260	45140310	02604514	03102220	16657417	30020740	
00466	00000530	00002634	02644514	03100264	45140310	22201666	05523002	10000000	07400000	23740264	
00500	45140310	02644514	03102220	16661702	30021040	00000230	00002474	02644514	03100264	45140310	
00512	22201666	30423002	11000000	05240000	03400264	45140310	02644514	03102220	16664176	30021140	
00524	00000474	00000740	02644520	03100264	45200314	22201666	53313002	12000000	15100000	15740264	
00536	45200314	02644520	03142220	16666465	30021240	00000264	00002054	02644520	03140264	45240314	
00550	22201666	76213002	13000000	00000000	32740264	45240314	02644524	03142220	16670755	30021340	
00562	00000014	00002624	02644524	03140260	45240314	22201667	21113002	14000000	00200000	23700260	

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I-4-13

00574	45240314	02604524	03142220	16673244	30021440	00000000	00002480	02604524	03140260	45240314	
00606	22201667	44003002	15000000	11540000	03400260	45240314	02604524	03142220	16675534	30021540	
00620	00000200	00000744	02604524	03140260	45200314	22201667	66673002	16000000	02440000	15600260	
00632	45200314	02604524	03142220	16700023	30021640	00000000	00002044	02604524	03140260	45240314	
00644	22201670	11573002	17000000	11540000	32000260	45240314	02604524	03142220	16702313	30021740	
00656	00000000	00000634	02604524	03140260	45240314	22201670	34463002	20000000	00000000	23740260	
00670	45200314	02604520	03142220	16704002	30022040	00000244	00002514	02604520	03140260	45200314	
00702	22201670	57363002	21000000	02600000	03400260	45200314	02604520	03142220	16707071	30022140	
00714	00001524	00000740	02604520	03140260	45200314	22201671	02253002	22000000	03140000	15740260	
00726	45200314	02604520	03142220	16711361	30022240	00001260	00002054	02604520	03140260	45200314	
00740	22201671	25153002	23000000	00190000	32740260	45200314	02604520	03142220	16713650	30022340	
00752	00000014	00002524	02604520	03140260	45200314	22201671	50043002	24000000	00000000	23700260	
00764	45200314	02604520	03142220	16719140	30022440	00000004	00002480	02604520	03140260	45200314	
00776	22201671	72743002	25000000	02000000	03400260	45200314	02604520	03142220	16720427	30022540	
01010	00000220	00000744	02604520	03140260	45200314	22201672	15633002	26000000	00000000	15600260	
01022	45200314	02604520	03142220	16722717	30022640	00000000	00002044	02604520	03140260	45200314	
01034	22201672	40533002	27000000	02700000	32000260	45200314	02604520	03142220	16725206	30022740	
01046	00000320	00000634	02604520	03140260	45200314	22201672	63423002	30000000	02600000	23740260	
01060	45200314	02604520	03142220	16727476	30023040	00000270	00002474	02604520	03140260	45200314	
01072	22201673	06313002	31000000	14540000	03400260	45200314	02604520	03142220	16731765	30023140	
01104	00000700	00000740	02604520	03140260	45200314	22201673	31213002	32000000	13700000	15740260	
01116	45200314	02604520	03142220	16734255	30023240	00000014	00002054	02604520	03140260	45200314	
01130	22201673	54103002	33000000	12000000	32740260	45200314	02604520	03142220	16736544	30023340	
01142	00000000	00002524	02604520	03140260	45200314	22201673	17003002	34000000	10200000	23700260	
01154	45200314	02604520	03142220	16741034	30023440	00000000	00002500	02604520	03140260	45200314	
01166	22201674	21073002	35000000	03140000	03400260	45200314	02604520	03142220	16743323	30023540	
01200	00000504	00000744	02604520	03140260	45200314	22201674	44573002	36000000	11600000	15600260	
01212	45200314	02604520	03142220	16745613	30023640	00000310	00002044	02604520	03140260	45200314	
01224	22201674	67453002	37000000	02700000	32000260	45200314	02604520	03142220	16750102	30023740	
01236	00000440	00000634	02604520	03140260	45200314						

ILE 1, RECORD 5, 675 BIN WORDS.

00000	22201675	12353002	40000000	03540000	23740260	45140314	02604514	03142220	16752371	30024040	
00012	00001560	00002514	02544514	03140254	45140314	22201675	35253002	41000000	00000000	03400254	
00024	45140314	02544514	03142220	16754061	30024140	00000000	00000740	02544514	03140254	45140314	
00036	22201675	60153002	42000000	00140000	15740254	45140310	02544514	03102220	16757150	30024240	
00050	00000574	00002054	02544514	03100254	45140310	22201676	03043002	43000000	10200000	32740254	
00062	45140310	02544510	03102220	16761440	30024340	00000340	00002624	02544510	03100254	45100310	
00074	22201676	25143002	44000000	06340000	23700254	45100310	02604510	03102220	16763727	30024440	
00106	00000000	00002480	02604510	03100260	45100310	22201676	50633002	45000000	00000000	03400260	
00120	45100310	02604510	03102220	16765217	30024540	00000000	00000744	02604510	03100260	45100310	
00132	22201676	73523002	46000000	03200000	15000260	45100310	02604510	03102220	16767506	30024640	
00144	00000700	00002044	02604510	03100260	45100310	22201677	16423002	47000000	03600000	32600260	
00156	45100310	02644510	03102220	16772776	30024740	00000730	00006634	02644510	03100264	45100310	
00170	22201677	41313002	50000000	03600000	23740264	45100310	02644510	03102220	16775265	30025040	
00202	00001334	00002514	02644510	03100264	45100310	22201677	64213002	51000000	00400000	03400264	
00214	45100310	02644514	03102220	16777555	30025140	00000000	00000740	02644514	03100264	45140310	
00226	22201700	07103002	52000000	00000000	15740264	45140310	02644514	03102220	17002044	30025240	
00240	00000000	00002054	02644514	03100270	45140310	22201700	52003002	53000000	01040000	32740270	
00252	45140310	02704514	03102220	17004333	30025340	00000514	00002924	02704514	03100270	45140310	
00264	22201700	54573002	54000000	00300000	23700270	45141310	02704514	03102220	17006623	30025440	
00276	00000000	00002480	02704514	03100270	45140310	22201700	17573002	00000000	00000000	03400274	
00310	45140310	02744514	03102220	17011112	30030040	00001400	00000744	02744514	03100274	45140310	
00322	22201701	22463002	01000000	00040000	15600274	45140310	02744514	03102220	17013402	30020140	
00334	00001710	00002044	02744514	03100274	45200310	22201701	45303002	02000000	02600000	32600274	
00346	45200310	02744520	03102220	17015071	30020240	00001450	00000034	02744520	03100274	45200310	
00360	22201701	70253002	03000000	11240000	23740274	45200310	02704520	03102220	17020161	30020340	
00372	00000030	00002514	02704520	03100270	45200310	22201702	13153002	04000000	10200000	03400270	

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MAG-LAST FOUR RECORDS

FILE 1, RECORD 1, 675 BIN WORDS.

00000	22375255	60171002	10000000	10000000	16000300	43744100	03004374	41002237	52557152	10021040
00012	00000224	00002034	03004374	41000300	43744100	22375256	03061002	11000000	07040000	33000300
00024	43704100	03004370	41002237	52561442	10021140	00000650	00006634	03004370	41040300	43704104
00036	22375256	25761002	12000000	15100000	24140300	43704104	03004370	41042237	52563731	10021240
00050	00000274	00002174	03004370	41040304	43704104	22375256	50651002	13000000	00000000	20200304
00062	43704104	03044370	41042237	52566221	10021340	00000020	00002160	03044370	41040304	43704104
00074	22375256	73351002	14000000	00200000	16100304	43704104	03044370	41042237	52570510	10021440
00106	00000000	00002034	03044370	41040304	43704104	22375257	16441002	15000000	11500000	33140304
00120	43704104	03044370	41042237	52573000	10021540	00001070	00002624	03044370	41040304	43704104
00132	22375257	41331002	16000000	03700000	24100304	43704104	03044370	41042237	52575267	10021640
00144	00000000	00002160	03044370	41040304	43704104	22375257	64231002	17000000	11540000	20200304
00156	43704104	03104370	41042237	52577557	10021740	00000000	00002164	03044370	41040310	43704104
00170	22375260	07121002	20000000	00000000	15600304	43704104	03104370	41042237	52602046	10022040
00202	00000364	00002034	03104370	41100310	43704104	22375260	32021002	21000000	04100000	33000310
00214	43704110	03104370	41102237	52604335	10022140	00001524	00006654	03104370	41100310	43704110
00226	22375260	54711002	22000000	02540000	24140310	43704110	03104370	41102237	52606625	10022240
00240	00001554	00002174	03104370	41100310	43704110	22375260	77611002	23000000	00140000	20200310
00252	43704110	03104370	41102237	52611114	10022340	00000014	00002160	03104370	41100310	43704110
00264	22375261	22501002	24000000	00000000	15700310	43704110	03104370	41102237	52613404	10022440
00276	00000010	00002034	03104370	41100310	43704110	22375261	45401002	25000000	10740000	33140310
00310	43704110	03104370	41102237	52615673	10022540	00000344	00002044	03104370	41100314	43704110
00322	22375261	70271002	26000000	00000000	24100314	43704110	03144370	41102237	52620163	10022640
00334	00000000	00002160	03144370	41100314	43704110	22375262	13161002	27000000	04240000	20200314
00346	43704110	03144370	41102237	52622452	10022740	00000470	00002164	03144370	41100314	43704110
00360	22375262	36061002	30000000	04100000	16000314	43704110	03144370	41102237	52624742	10023040
00372	00000424	00002034	03144370	41100314	43704110	22375262	60751002	31000000	14540000	33000314
00404	43704110	03144370	41102237	52627231	10023140	00000670	00006634	03144370	41100314	43704110
00416	22375263	03051002	32000000	16440000	24140314	43704110	03144370	41102237	52631521	10023240
00430	00000014	00002174	03144370	41100314	43704110	22375263	26541002	33000000	11740000	20200314
00442	43704110	03144370	41102237	52634010	10023340	00000000	00002160	03144370	41100314	43704110
00454	22375263	51441002	34000000	03640000	16100314	43704114	03204370	41142237	52636300	10023440
00466	00000000	00002034	03204370	41140320	43704114	22375263	74331002	35000000	04500000	33140320
00500	43704114	03144370	41142237	52640567	10023540	00001114	00002624	03144370	41140320	43704110
00512	22375264	17231002	36000000	12300000	24100314	43704110	03204374	41102237	52643057	10023640
00524	00000454	00002160	03144374	41100320	43744110	22375264	42121002	37000000	04140000	20200320
00536	43744110	03204374	41102237	52645346	10023740	00000600	00002164	03144374	41100314	43704110
00550	22375264	65021002	40000000	05140000	16000314	43704110	03144374	41102237	52647635	10024040
00562	00001564	00002034	03204370	41100320	43704110	22375265	07711002	41000000	00000000	33000314
00574	43704110	03144370	41102237	52652125	10024140	00000400	00006634	03144370	41100314	43704110
00606	22375265	32011002	42000000	00140000	24140320	43704110	03144370	41102237	52654414	10024240
00620	00000574	00002174	03144370	41100314	43704110	22375265	55501002	43000000	10240000	20200314
00632	43704110	03144370	41102237	52656704	10024340	00000470	00002160	03144370	41100314	43704110
00644	22375266	00401002	44000000	13300000	16100314	43704110	03144370	41102237	52661173	10024440
00656	00000000	00002034	03144370	41100314	43704110	22375266	23271002	45000000	00000000	33140314
00670	43704110	03144370	41102237	52663463	10024540	00000000	00002624	03144370	41100314	43704110
00702	22375266	46161002	46000000	04540000	24100314	43704110	03144370	41102237	52665752	10024640
00714	00001044	00002160	03144370	41100314	43704110	22375266	71061002	47000000	05240000	20200314
00726	43704110	03144370	41102237	52670242	10024740	00000734	00002164	03144370	41100320	43704110
00740	22375267	13751002	50000000	03600000	16000314	43704110	03144370	41102237	52672531	10025040
00752	00001370	00002034	03144370	41100314	43704110	22375267	36651002	51000000	03340000	33000314
00764	43704110	03144370	41102237	52675021	10025140	00000000	00006634	03144370	41100314	43704110
00776	22375267	61541002	52000000	00000000	24140320	43704110	03304374	41102237	52677310	10025240
01010	00000000	00002174	03304374	41100330	43744110	22375270	04441002	53000000	01000000	20200324
01022	43744110	03304370	41102237	52701577	10025340	00001370	00002160	03304374	41100330	43744110
01034	22375270	27331002	54000000	13740000	15740324	43744110	03244374	41102237	52704067	10025440
01046	00000000	00002034	03244374	41100330	43704114	22375270	52221002	00000000	00000000	33140330

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01060	43744114	03304374	41102237	52706356	10030040	00001374	00002624	03304374	41100330	43744114	
01072	22375270	75121002	01000000	00640000	24100324	43744114	03304374	41102237	52710646	10020140	
01104	00001710	00002160	03304374	41140330	43744110	22375271	20011002	02000000	04040000	20200324	
01116	43744114	03244374	41142237	52713135	10020240	00001450	00002164	03244374	41140330	43744114	
01130	22375271	42711002	03000000	14040000	16000324	43744114	03244374	41142237	52715425	10020340	
01142	00000354	00002034	03304374	41140330	43744114	22375271	65601002	04000000	05300000	33000330	
01154	43744114	03304374	41142237	52717714	10020440	00000230	00006634	03304374	41140330	43744114	
01166	22375272	10501002	05000000	00040000	24140330	43744114	03304374	41142237	52722204	10020540	
01200	00000074	00002174	03304374	41140330	43744114	22375272	33371002	06000000	00000000	20200324	
01212	43744114	03304374	41142237	52724473	10020640	00000010	00002160	03244374	41140330	43744114	
01224	22375272	56271002	07000000	00000000	16140330	43744114	03304374	41142237	52726763	10020740	
01236	00001244	00002034	03304374	41140330	43744114						

FILE 1, RECORD 2, 675 BIN WORDS.

00000	22375273	01101002	10000000	10000000	33140330	43744114	03304374	41142237	52731252	10021040	
00012	00000224	00002624	03304374	41140330	43744114	22375273	24061002	11000000	07040000	24100330	
00024	44004114	03304374	41142237	52733541	10021140	00000650	00002160	03304374	41140330	43744114	
00036	22375273	46751002	12000000	15100000	20200330	43744114	03304374	41142237	52736031	10021240	
00050	00000260	00002164	03304374	41140330	43744114	22375273	71651002	13000000	00000000	16000330	
00062	43744114	03304374	41142237	52740320	10021340	00000020	00002034	03304374	41140330	43744114	
00074	22375274	14541002	14000000	00200000	33000330	43744114	03304374	41142237	52742610	10021440	
00106	00000000	00009634	03304374	41140330	43744114	22375274	37441002	15000000	11500000	24140330	
00120	43744114	03304374	41142237	52745077	10021540	00001070	00002174	03304374	41140330	43744114	
00132	22375274	62331002	16000000	03700000	20200330	43744114	03304374	41142237	52747367	10021640	
00144	00000000	00002160	03304374	41140330	43744114	22375275	05221002	17000000	11540000	16140330	
00156	43704120	03304374	41202237	52751656	10021740	06000000	00002034	03304374	41140330	43704114	
00170	22375275	30121002	20000000	00000000	33140330	43704114	03304370	41142237	52754146	10022040	
00202	00000364	00002624	03304370	41140330	43744114	22375275	53011002	21000000	04100000	24100330	
00214	43744114	03304370	41142237	52756435	10022140	00001524	00002160	03304374	41200330	43704114	
00226	22375275	75711002	22000000	03000000	20200330	43744114	03304370	41142237	52760725	10022240	
00240	00001554	00002164	03304370	41140330	43704120	22375276	20601002	23000000	00140000	16000330	
00252	43744120	03304374	41202237	52763214	10022340	00000014	00002034	03304374	41140330	43744114	
00264	22375276	43501002	24000000	00000000	33000330	43744114	03304370	41142237	52765503	10022440	
00276	00000010	00009634	03304370	41140330	43704120	22375276	66371002	25000000	10740000	24140330	
00310	43704114	03304370	41142237	52767773	10022540	00000344	00002174	03304370	41140330	43704114	
00322	22375277	11271002	26000000	00000000	20200330	43704114	03304370	41142237	52772262	10022640	
00334	00000000	00002160	03304370	41140320	43644114	22375277	34101002	27000000	04240000	16100320	
00346	43644114	03204364	41142237	52774552	10022740	00000464	00002034	03204364	41140320	43644114	
00360	22375277	57051002	30000000	04100000	33140320	43704114	03204364	41142237	52777043	10023040	
00372	00000424	00002624	03204364	41140320	43644114	22375300	01751002	31000000	14540000	24100320	
00404	43644120	03204370	41202237	53001431	10023140	00000670	00002160	03204364	41200320	43644120	
00416	22375300	24651002	32000000	16440000	20200320	43644120	03244364	41202237	53003620	10023240	
00430	00000014	00002154	03204364	41200324	43644120	22375300	47541002	33000000	11740000	16000324	
00442	43644120	03244364	41202237	53006110	10023340	00000000	00002034	03204364	41200324	43644120	
00454	22375300	72431002	34000000	03640000	33000320	43644120	03204364	41202237	53010377	10023440	
00466	00000000	00006634	03204364	41200324	43644120	22375301	15331002	35000000	04500000	24140320	
00500	43644120	03244364	41202237	53012667	10023540	00001114	00002174	03204364	41240320	43644120	
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00524	00000454	00002160	03204364	41240320	43644120	22375301	63121002	37000000	04140000	15700320	
00536	43644124	03204370	41242237	53017445	10023740	00000600	00002034	03204364	41240324	43644124	
00550	22375302	06011002	40000000	05140000	33140324	43704124	03204364	41242237	53021735	10024040	
00562	00001570	00002624	03244364	41240324	43704124	22375302	30711002	41000000	00000000	24100324	
00574	43704124	03204370	41242237	53024229	10024140	00000400	00002160	03244364	41240324	43644124	
00606	22375302	53601002	42000000	00140000	20200324	43644124	03244364	41302237	53026514	10024240	
00620	00000574	00002154	03244364	41300324	43644130	22375302	76501002	43000000	10240000	16000324	
00632	43644130	03244364	41302237	53031003	10024340	00000470	00002034	03304364	41300324	43644130	
00644	22375303	21371002	44000000	13300000	33000324	43644130	03244364	41302237	53033273	10024440	
00656	00000000	00006634	03244364	41300330	43644130	22375303	44271002	45000000	00000000	24140330	

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00670	43644130	03244364	41342237	53035562	10024540	00000000	00002174	03244364	41340330	43644134	
00702	22375303	67161002	45000000	04540000	20200330	43644134	03304364	41342237	53040052	10024640	
00714	00001050	00002160	03304364	41340330	43644134	22375304	12051002	47000000	05200000	15700330	
00726	43644134	03304364	41342237	53042341	10024740	00000734	00002034	03304364	41340330	43644134	
00740	22375304	34751002	50000000	03600000	33140330	43644134	03304360	41342237	53044631	10025040	
00752	00001400	00002644	03304364	41400330	43644140	22375304	57641002	51000000	03340000	24100330	
00764	43644140	03304360	41402237	53047120	10025140	00000000	00002160	03304360	41400330	43604140	
00776	22375305	02541002	52000000	00000000	20200330	43604140	03344360	41402237	53051410	10025240	
01010	00000000	00002164	03344364	41400334	43644140	22375305	25431002	53000000	01000000	16000330	
01022	43644140	03344364	41402237	53053677	10025340	00001370	00002034	03304364	41400330	43644140	
01034	22375305	50331002	54000000	13740000	33000330	43644140	03304364	41402237	53056166	10025440	
01046	00000000	00006654	03304370	41400334	43644140	22375305	73221002	00000000	00000000	24140334	
01060	43644140	03304370	41402237	53060456	10030040	00001374	00002174	03304370	41400334	43704140	
01072	22375306	16111002	01000000	00640000	20200334	43704140	03304370	41402237	53062745	10020140	
01104	00001710	00002160	03304370	41400330	43704140	22375306	41011002	02000000	04000000	16100330	
01116	43704140	03344370	41342237	53065235	10020240	00001450	00002034	03304370	41340330	43704134	
01130	22375306	63701002	03000000	14040000	33140334	43704134	03344370	41342237	53067524	10020340	
01142	00000354	00002624	03344370	41340330	43704134	22375307	06601002	04000000	03640000	24100334	
01154	43704134	03344370	41342237	53072014	10020440	00000234	00002160	03304370	41340330	43704134	
01166	22375307	31471002	05000000	00040000	20200330	43704134	03304370	41342237	53074303	10020540	
01200	00000100	00002164	03344370	41340334	43704134	22375307	54371002	06000000	00000000	16000334	
01212	43704134	03344370	41342237	53076573	10020640	00000010	00002034	03304370	41340334	43704134	
01224	22375307	77261002	07000000	00000000	33000330	43704130	03344370	41302237	53101062	10020740	
01236	00001244	00006634	03304370	41340334	43704134						

FILE 1, RECORD 3, 675 BIN WORDS.

00000	22375310	22161002	10000000	10000000	24140334	43704130	03304370	41342237	53103352	10021040	
00012	00000224	00002174	03344370	41300330	43704130	22375310	45051002	11000000	07040000	20200330	
00024	43744134	03304374	41302237	53105641	10021140	00000650	00002160	03304370	41300330	43704130	
00036	22375310	67751002	12000000	15100000	16100330	43704134	03304370	41302237	53110130	10021240	
00050	00000254	00002034	03344370	41300330	43704134	22375311	12641002	13000000	00000000	33140334	
00062	43704130	03304370	41302237	53112420	10021340	00000020	00002624	03304370	41340330	43704130	
00074	22375311	35541002	14000000	00200000	24100330	43704130	03304370	41302237	53114707	10021440	
00106	00000000	00002160	03304370	41300330	43704134	22375311	60431002	15000000	11500000	20200330	
00120	43704130	03304370	41342237	53117177	10021540	00001070	00002164	03304370	41300330	43704130	
00132	22375312	03331002	16000000	03700000	16000330	43704130	03304370	41342237	53121466	10021640	
00144	00000000	00002034	03304370	41340334	43704134	22375312	26221002	17000000	11540000	33000330	
00156	43704134	03304370	41342237	53123756	10021740	00000000	00006634	03304370	41340330	43704134	
00170	22375312	51121002	20000000	00000000	24140330	43704134	03304370	41302237	53126245	10022040	
00202	00000364	00002174	03304370	41300330	43704134	22375312	74011002	21000000	04100000	20200330	
00214	43704134	03304370	41342237	53130535	10022140	00001524	00002160	03304370	41340334	43704130	
00226	22375313	16701002	22000000	02640000	16100330	43704134	03344370	41342237	53133024	10022240	
00240	00001554	00002034	03304364	41300334	43644134	22375313	41601002	23000000	00140000	33140330	
00252	43644134	03304370	41342237	53135314	10022340	00000014	00002624	03304370	41340330	43704134	
00264	22375313	64471002	24000000	00000000	24100334	43704134	03404370	41342237	53137603	10022440	
00276	00000010	00002160	03404370	41400340	43704140	22375314	07371002	25000000	10740000	20200340	
00310	43704134	03404370	41342237	53142072	10022540	00000344	00002164	03404370	41340340	43704134	
00322	22375314	32261002	26000000	00000000	15600340	43704134	03404370	41342237	53144362	10022640	
00334	00000000	00002034	03404370	41340340	43704134	22375314	55161002	27000000	04240000	33000340	
00346	43704134	03404370	41402237	53146653	10022740	00000464	00006634	03404370	41400340	43704140	
00360	22375315	00051002	30000000	04100000	24140340	43704134	03404370	41402237	53151141	10023040	
00372	00000424	00002174	03404370	41400340	43704140	22375315	22751002	31000000	14540000	20200340	
00404	43704134	03404370	41342237	53153430	10023140	00000670	00002160	03404370	41400340	43704134	
00416	22375315	45641002	32000000	16440000	15740340	43704140	03404370	41402237	53155720	10023240	
00430	00000020	00002034	03404370	41340340	43704140	22375315	70531002	33000000	11740000	33140340	
00442	43704134	03404370	41342237	53160207	10023340	00000000	00002624	03404370	41340340	43704134	
00454	22375316	13431002	34000000	05300000	24100340	43704134	03404370	41342237	53162477	10023440	
00466	00000000	00002160	03404370	41340340	43704134	22375316	36321002	35000000	04500000	20200340	

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00500	43704134	03404370	41342237	53164766	10023540	00001114	00002164	03404370	41340340	43704134	
00512	22375316	61221002	36000000	12300000	16000340	43704134	03404370	41342237	53167256	10023640	
00524	00000454	00002034	03404370	41340340	43704134	22375317	04111002	37000000	04140000	33000340	
00536	43704134	03404370	41342237	53171545	10023740	00000600	00006634	03404370	41340340	43704134	
00550	22375317	27011002	40000000	05140000	24140340	43704134	03404370	41342237	53174035	10024040	
00562	00001570	00002174	03404370	41340340	43704134	22375317	51701002	41000000	00000000	20200340	
00574	43704134	03404370	41342237	53176324	10024140	00000400	00002160	03404370	41340340	43704134	
00606	22375317	74601002	42000000	00140000	16140340	43704134	03404370	41342237	53200614	10024240	
00620	00000600	00002034	03404370	41340340	43704134	22375320	17471002	43000000	10240000	33140340	
00632	43704134	03404370	41342237	53203103	10024340	00000470	00002024	03404370	41340340	43704134	
00644	22375320	42371002	44000000	13300000	24100340	43704134	03404370	41342237	53205372	10024440	
00656	00000000	00002160	03404370	41340340	43704134	22375320	65261002	45000000	00000000	20200340	
00670	43704134	03404370	41342237	53207662	10024540	00000000	00002164	03404370	41340340	43704134	
00702	22375321	10161002	46000000	04540000	15000340	43704134	03404370	41342237	53212151	10024640	
00714	00001100	00002034	03404370	41340340	43704134	22375321	33051002	47000000	05200000	33000340	
00726	43704134	03404370	41342237	53214441	10024740	00000734	00006634	03404370	41340340	43704134	
00740	22375321	55741002	50000000	03600000	24140340	43704134	03404370	41342237	53216730	10025040	
00752	00001354	00002174	03404370	41340340	43704134	22375322	00641002	51000000	03340000	20200340	
00764	43704134	03404370	41342237	53221220	10025140	00000000	00002160	03404370	41340340	43704134	
00776	22375322	23531002	52000000	00000000	15740340	43704134	03404370	41342237	53223507	10025240	
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01022	43704134	03404370	41342237	53225776	10025340	00001370	00002024	03404370	41340340	43704134	
01034	22375322	71421002	54000000	13740000	24100340	43704134	03404370	41342237	53230266	10025440	
01046	00000000	00002160	03404370	41340340	43704134	22375323	14221002	00000000	00000000	20200340	
01060	43704134	03244370	41302237	53232955	10030040	00001374	00002164	03304370	41300324	43704130	
01072	22375323	37111002	01000000	00540000	16000330	43704130	03404370	41342237	53235045	10020140	
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01116	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
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01166	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
01200	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
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FORM 1411-3
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LE 1, RECORD 2, 6 BIN WORDS.

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00656	25500000	00000000	22201707	61523002	00000000	70440354	25600274	00000000	22201707	73063002	
00670	00000000	70440354	25700320	00000000	22201710	04423002	00000000	70440354	25900260	00000000	
00702	22201710	15753002	00000000	70440354	26100270	00000000	22201710	27313002	00000000	70440354	
00714	25201454	00000000	22201710	40053002	00000000	70440354	26300700	00000000	22201710	52213002	
00726	00000000	70440354	26401370	00000000	22201710	63543002	00000000	70440354	26500014	00000000	
00740	22201710	75103002	00000000	70440354	26601174	00003000	22201711	06443002	00000000	70440354	
00752	25700000	00000000	22201711	20003002	00000000	70440354	27001020	00000000	22201711	31333002	
00764	00000000	70440354	27100000	00000000	22201711	72073002	00000000	70440354	27200314	00000000	
00776	22201711	54233002	00000000	70440354	27300504	00000000	22201711	65573002	00000000	70440354	
01010	27401160	00000000	22201711	77123002	00000000	70440354	27500310	00000000	22201712	10463002	
01022	00000000	70440354	27600270	00000000	22201712	22023002	00000000	70440354	27700440	00000000	
01034	22201712	33353002	00000000	70440354	30000354	00000000	22201712	44713002	00000000	70440354	
01046	30101560	00000000	22201712	56203002	00000000	70440354	30200000	00000000	22201712	67613002	
01060	00000000	70440354	30300000	00000000	22201713	01143002	00000000	70440354	30400014	00000000	
01072	22201713	12503002	00000000	70440354	30500600	00000000	22201713	24043002	00000000	70440354	

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01104	30601020	00000000	22201713	35403002	00000000	70440354	30700340	00000000	22201713	46733002
01116	00000000	70440354	31000534	00000000	22201713	60273002	00000000	70440354	31100000	00000000
01130	22201713	71033002	00000000	70440354	31200000	00000000	22201714	03173002	00000000	70440354
01142	31300000	00000000	22201714	14523002	00000000	70440354	31400320	00000000	22201714	26063002
01154	00000000	70440354	31500700	00000000	22201714	37423002	00000000	70440354	31600360	00000000
01166	22201714	50753002	00000000	70440354	31700734	00000000	22201714	62313002	00000000	70440354
01200	32000360	00000000	22201714	73953002	00000000	70440354	32101334	00000000	22201715	05213002
01212	00000000	70440354	32200034	00000000	22201715	16543002	00000000	70440354	32300000	00000000
01224	22201715	30103002	00000000	70440354	32400000	00000000	22201715	41443002	00000000	70440354
01236	32500000	00000000	22201715	53003002	00000000	70440354	32600104	00000000	22201715	64333002
01250	00000000	70440354	32700514	00000000	22201715	75573002	00000000	70440354	33000630	00000000
01262	22201715	07233002	00000000	70440354	33100000	00000000	22201716	20563002	00000000	70440354
01274	20000000	00000000	22201716	32123002	00000000	70440354	20141400	00000000	22201716	43463002
01306	00000000	70440354	20200054	00000000	22201716	55023002	00000000	70440354	20301710	00000000
01320	22201716	66353002	00000000	70440354	20400200	00000000	22201716	77713002	00000000	70440354
01332	20541450	00000000	22201717	11253002	00000000	70440354	20601124	00000000	22201717	22613002
01344	00000000	70440354	20700030	00000000	22201717	34153002	00000000	70440354	21001020	00000000
01356	22201717	45503002	00000000	70440354	21100240	00000000	22201717	57043002	00000000	70440354
01370	21200004	00000000	22201717	70403002	00000000	70440354	21300100	00000000	22201720	01733002
01402	00000000	70440354	21400000	00000000	22201720	13273002	00000000	70440354	21500004	00000000
01414	22201720	24033002	00000000	70440354	21600000	00000000	22201720	36173002	00000000	70440354
01426	21700530	00000000	22201720	47523002	00000000	70440354	22000140	00000000	22201720	61063002
01440	00000000	70440354	22100230	00000000	22201720	72423002	00000000	70440354	22200524	00000000
01452	22201721	03753002	00000000	70440354	22300474	00000000	22201721	15313002	00000000	70440354
01464	22401504	00000000	22201721	20663002	00000000	70440354	22500300	00000000	22201721	40213002
01476	00000000	70440354	22500000	00000000	22201721	91543002	00000000	70440354	22700014	00000000
01510	22201721	63103002	00000000	70440354	23000020	00000000	22201721	74443002	00000000	70440354
01522	23100000	00000000	22201722	06003002	00000000	70440354	23201150	00000000	22201722	17333002
01534	00000000	70440354	23300200	00000000	22201722	30073002	00000000	70440354	23400244	00000000
01546	22201722	42233002	00000000	70440354	23500000	00000000	22201722	53573002	00000000	70440354
01560	23601154	00000000	22201722	55123002	00000000	70440354	23700000	00000000	22201722	76463002
01572	00000000	70440354	24000000	00000000	22201723	10023002	00000000	70440354	24100244	00000000
01604	22201723	21353002	00000000	70440354	24200250	00000000	22201723	32713002	00000000	70440354
01616	24301524	00000000	22201723	44253002	00000000	70440354	24400300	00000000	22201723	55613002
01630	00000000	70440354	24501200	00000000	22201723	67143002	00000000	70440354	24600014	00000000
01642	22201724	00503002	00000000	70440354	24700014	00000000	22201724	12043002	00000000	70440354
01654	25000000	00000000	22201724	23403002	00000000	70440354	25100004	00000000	22201724	34733002
01666	00000000	70440354	25200200	00000000	22201724	46273002	00000000	70440354	25300220	00000000
01700	22201724	57033002	00000000	70440354	25400000	00000000	22201724	71163002	00000000	70440354
01712	25500000	00000000	22201725	02523002	00000000	70440354	25600274	00000000	22201725	14063002
01724	00000000	70440354	25700320	00000000	22201725	25423002	00000000	70440354	26000260	00000000
01736	22201725	36753002	00000000	70440354	26100270	00000000	22201725	50313002	00000000	70440354
01750	26201454	00000000	22201725	91653002	00000000	70440354	26300700	00000000	22201725	73213002
01762	00000000	70440354	26401370	00000000	22201726	04543002	00000000	70440354	26500014	00000000
01774	22201726	16103002	00000000	70440354	26601174	00000000	22201726	27443002	00000000	70440354
02006	26700000	00000000	22201726	41003002	00000000	70440354	27001020	00000000	22201726	52333002
02020	00000000	70440354	27100000	00000000	22201726	63573002	00000000	70440354	27200314	00000000
02032	22201726	75233002	00000000	70440354	27300504	00000000	22201727	06563002	00000000	70440354
02044	27401160	00000000	22201727	20123002	00000000	70440354	27500310	00000000	22201727	31463002
02056	00000000	70440354	27700270	00000000	22201727	43023002	00000000	70440354	27700440	00000000

ILE 1, RECORD 5, 1080 BIN WORDS.

00000	22201727	54373002	00000000	70440354	30000354	00000000	22201727	65713002	00000000	70440354
00012	30101560	00000000	22201727	77253002	00000000	70440354	30200000	00000000	22201730	10613002
00024	00000000	70440354	30300000	00000000	22201730	22143002	00000000	70440354	30400014	00000000
00036	22201730	33503002	00000000	70440354	30500574	00000000	22201730	45043002	00000000	70440354
00050	30601020	00000000	22201730	56403002	00000000	70440354	30700340	00000000	22201730	67733002
00062	00000000	70440354	31000534	00000000	22201731	01273002	00000000	70440354	31100000	00000000

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LAST FOUR RECORDS

FILE 1, RECORD 1, 1080 BIN WORDS.

00000	22446375	67214402	00000000	70440354	27401250	00000000	22446376	00544402	00000000	70440354
00012	27500550	00000000	22446376	12104402	00000000	70440354	27600500	00000000	22446376	23444402
00024	00000000	70440354	27700674	00000000	22446376	35004402	00000000	70440354	30000610	00000000
00036	22446376	46344402	00000000	70440354	30101570	00000000	22446376	57674402	00000000	70440354
00050	30200000	00000000	22446376	71234402	00000000	70440354	30300464	00000000	22446377	02574402
00062	00000000	70440354	30400014	00000000	22446377	14124402	00000000	70440354	30500600	00000000
00074	22446377	25464402	00000000	70440354	30601024	00000000	22446377	37024402	00000000	70440354
00106	30700564	00000000	22446377	50364402	00000000	70440354	31001420	00000000	22446377	61714402
00120	00000000	70440354	31100000	00000000	22446377	73254402	00000000	70440354	31200060	00000000
00132	22446400	04614402	00000000	70440354	31300000	00000000	22446400	16154402	00000000	70440354
00144	31400544	00000000	22446400	27504402	00000000	70440354	31501130	00000000	22446400	41044402
00156	00000000	70440354	31600614	00000000	22446400	52404402	00000000	70440354	31700734	00000000
00170	22446400	63734402	00000000	70440354	32000360	00000000	22446400	75274402	00000000	70440354
00202	32101400	00000000	22446401	06634402	00000000	70440354	32200440	00000000	22446401	20174402
00214	00000000	70440354	32300000	00000000	22446401	31524402	00000000	70440354	32400000	00000000
00226	22446401	43064402	00000000	70440354	32500000	00000000	22446401	54424402	00000000	70440354
00240	32600100	00000000	22446401	65734402	00000000	70440354	32701464	00000000	22446401	77314402
00252	00000000	70440354	33001474	00000000	22446402	10054402	00000000	70440354	33100030	00000000
00264	22446402	22214402	00000000	70440354	20000000	00000000	22446402	33544402	00000000	70440354
00276	20141374	00000000	22446402	45104402	00000000	70440354	20200064	00000000	22446402	56444402
00310	00000000	70440354	20301710	00000000	22446402	70004402	00000000	70440354	20400474	00000000
00322	22446403	01334402	00000000	70440354	20541450	00000000	22446403	12674402	00000000	70440354
00334	20601464	00000000	22446403	24234402	00000000	70440354	20700444	00000000	22446403	35564402
00346	00000000	70440354	21000350	00000000	22446403	47124402	00000000	70440354	21101454	00000000
00360	22446403	60464402	00000000	70440354	21201430	00000000	22446403	72024402	00000000	70440354
00372	21300100	00000000	22446404	03334402	00000000	70440354	21400000	00000000	22446404	14714402
00404	00000000	70440354	21500010	00000000	22446404	26254402	00000000	70440354	21600000	00000000
00416	22446404	37604402	00000000	70440354	21701340	00000000	22446404	51144402	00000000	70440354
00430	22001024	00000000	22446404	62504402	00000000	70440354	22101460	00000000	22446404	74044402
00442	00000000	70440354	22201004	00000000	22446405	05414402	00000000	70440354	22300750	00000000
00454	22446405	16734402	00000000	70440354	22401510	00000000	22446405	30274402	00000000	70440354
00466	22501164	00000000	22446405	41634402	00000000	70440354	22600000	00000000	22446405	53164402
00500	00000000	70440354	22700020	00000000	22446405	64524402	00000000	70440354	23000020	00000000
00512	22446405	76064402	00000000	70440354	23100000	00000000	22446406	07414402	00000000	70440354
00524	23201150	00000000	22446406	20754402	00000000	70440354	23301214	00000000	22446406	32314402
00536	00000000	70440354	23400460	00000000	22446406	43654402	00000000	70440354	23500000	00000000
00550	22446406	55204402	00000000	70440354	23601154	00000000	22446406	66544402	00000000	70440354
00562	23700000	00000000	22446407	00104402	00000000	70440354	24000000	00000000	22446407	11444402
00574	00000000	70440354	24100454	00000000	22446407	22774402	00000000	70440354	24200504	00000000
00606	22446407	34334402	00000000	70440354	24301524	00000000	22446407	45674402	00000000	70440354
00620	24401200	00000000	22446407	57224402	00000000	70440354	24501034	00000000	22446407	70564402
00632	00000000	70440354	24600014	00000000	22446410	02124402	00000000	70440354	24700014	00000000
00644	22446410	13464402	00000000	70440354	25000000	00000000	22446410	25024402	00000000	70440354
00656	25100010	00000000	22446410	36354402	00000000	70440354	25201220	00000000	22446410	47714402
00670	00000000	70440354	25300434	00000000	22446410	61254402	00000000	70440354	25400000	00000000
00702	22446410	72604402	00000000	70440354	25500000	00000000	22446411	04144402	00000000	70440354
00714	25600514	00000000	22446411	15504402	00000000	70440354	25700564	00000000	22446411	27044402
00726	00000000	70440354	26000500	00000000	22446411	40374402	00000000	70440354	26100520	00000000
00740	22446411	51734402	00000000	70440354	26201454	00000000	22446411	63274402	00000000	70440354
00752	26300660	00000000	22446411	74624402	00000000	70440354	26401124	00000000	22446412	06164402
00764	00000000	70440354	26500340	00000000	22446412	17324402	00000000	70440354	26601174	00000000
00776	22446412	31064402	00000000	70440354	26700154	00000000	22446412	42414402	00000000	70440354
01010	27000350	00000000	22446412	53734402	00000000	70440354	27100000	00000000	22446412	65314402
01022	00000000	70440354	27200544	00000000	22446412	76654402	00000000	70440354	27301200	00000000
01034	22446413	10204402	00000000	70440354	27401250	00000000	22446413	21544402	00000000	70440354
01046	27500550	00000000	22446413	33104402	00000000	70440354	27600500	00000000	22446413	44434402

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01060	00000000	70440354	27700674	00000000	22446413	56004402	00000000	70440354	30000604	00000000	
01072	22446413	67334402	00000000	70440354	30101570	00000000	22446414	00674402	00000000	70440354	
01104	30200000	00000000	22446414	12224402	00000000	70440354	30300464	00000000	22446414	23564402	
01116	00000000	70440354	30400014	00000000	22446414	35124402	00000000	70440354	30500600	00000000	
01130	22446414	46454402	00000000	70440354	30601024	00000000	22446414	60014402	00000000	70440354	
01142	30700564	00000000	22446414	71354402	00000000	70440354	31001420	00000000	22446415	02714402	
01154	00000000	70440354	31100000	00000000	22446415	14244402	00000000	70440354	31200060	00000000	
01166	22446415	25604402	00000000	70440354	31300000	00000000	22446415	37144402	00000000	70440354	
01200	31400544	00000000	22446415	50504402	00000000	70440354	31501130	00000000	22446415	62034402	
01212	00000000	70440354	31600614	00000000	22446415	73374402	00000000	70440354	31700734	00000000	
01224	22446416	04734402	00000000	70440354	32000360	00000000	22446416	16274402	00000000	70440354	
01236	32101414	00000000	22446416	27624402	00000000	70440354	32200440	00000000	22446416	41164402	
01250	00000000	70440354	32300000	00000000	22446416	52524402	00000000	70440354	32400000	00000000	
01262	22446416	64054402	00000000	70440354	32500000	00000000	22446416	75414402	00000000	70440354	
01274	32600100	00000000	22446417	06754402	00000000	70440354	32701464	00000000	22446417	20314402	
01306	00000000	70440354	33001474	00000000	22446417	31644402	00000000	70440354	33100030	00000000	
01320	22446417	43204402	00000000	70440354	20000000	00000000	22446417	54544402	00000000	70440354	
01332	20141374	00000000	22446417	66104402	00000000	70440354	20200064	00000000	22446417	77434402	
01344	00000000	70440354	20301710	00000000	22446420	10774402	00000000	70440354	20400474	00000000	
01356	22446420	22334402	00000000	70440354	20541450	00000000	22446420	33674402	00000000	70440354	
01370	20601470	00000000	22446420	45224402	00000000	70440354	20700444	00000000	22446420	56564402	
01402	00000000	70440354	21000350	00000000	22446420	70124402	00000000	70440354	21101460	00000000	
01414	22446421	01454402	00000000	70440354	21201430	00000000	22446421	13014402	00000000	70440354	
01426	21300100	00000000	22446421	24354402	00000000	70440354	21400000	00000000	22446421	35714402	
01440	00000000	70440354	21500010	00000000	22446421	47244402	00000000	70440354	21600000	00000000	
01452	22446421	56044402	00000000	70440354	21701340	00000000	22446421	72144402	00000000	70440354	
01464	22001024	00000000	22446422	03474402	00000000	70440354	22101460	00000000	22446422	15034402	
01476	00000000	70440354	22201004	00000000	22446422	20494402	00000000	70440354	22300750	00000000	
01510	22446422	37724402	00000000	70440354	22401510	00000000	22446422	51274402	00000000	70440354	
01522	22501164	00000000	22446422	62624402	00000000	70440354	22600000	00000000	22446422	74164402	
01534	00000000	70440354	22700020	00000000	22446423	05224402	00000000	70440354	23000020	00000000	
01546	22446423	17054402	00000000	70440354	23100000	00000000	22446423	30414402	00000000	70440354	
01560	23201150	00000000	22446423	41754402	00000000	70440354	23301214	00000000	22446423	53304402	
01572	00000000	70440354	23400460	00000000	22446423	64644402	00000000	70440354	23500000	00000000	
01604	22446423	76204402	00000000	70440354	23601154	00000000	22446424	07544402	00000000	70440354	
01616	23700000	00000000	22446424	21074402	00000000	70440354	24000000	00000000	22446424	32434402	
01630	00000000	70440354	24100454	00000000	22446424	43774402	00000000	70440354	24200504	00000000	
01642	22446424	55334402	00000000	70440354	24301524	00000000	22446424	66664402	00000000	70440354	
01654	24401174	00000000	22446425	00224402	00000000	70440354	24501634	00000000	22446425	11564402	
01666	00000000	70440354	24600014	00000000	22446425	23114402	00000000	70440354	24700014	00000000	
01700	22446425	34454402	00000000	70440354	25000000	00000000	22446425	46014402	00000000	70440354	
01712	25100010	00000000	22446425	57354402	00000000	70440354	25201220	00000000	22446425	70704402	
01724	00000000	70440354	25300434	00000000	22446426	02244402	00000000	70440354	25400000	00000000	
01736	22446426	13604402	00000000	70440354	25500000	00000000	22446426	25134402	00000000	70440354	
01750	25600514	00000000	22446426	36474402	00000000	70440354	25700564	00000000	22446426	50034402	
01762	00000000	70440354	26000500	00000000	22446426	61374402	00000000	70440354	26100520	00000000	
01774	22446426	72724402	00000000	70440354	26201454	00000000	22446427	04264402	00000000	70440354	
02006	26300660	00000000	22446427	15624402	00000000	70440354	26401724	00000000	22446427	27164402	
02020	00000000	70440354	26500340	00000000	22446427	40514402	00000000	70440354	26601200	00000000	
02032	22446427	52054402	00000000	70440354	26700154	00000000	22446427	63414402	00000000	70440354	
02044	27000350	00000000	22446427	74754402	00000000	70440354	27100000	00000000	22446430	06304402	
02056	00000000	70440354	27200544	00000000	22446430	17044402	00000000	70440354	27301200	00000000	

FILE 1, RECORD 2, 1080 BIN WORDS.

00000	22446430	31204402	00000000	70440354	27401250	00000000	22446430	42534402	00000000	70440354	
00012	27500550	00000000	22446430	54074402	00000000	70440354	27600500	00000000	22446430	65434402	
00024	00000000	70440354	27700674	00000000	22446430	76774402	00000000	70440354	30000610	00000000	
00036	22446431	10324402	00000000	70440354	30101570	00000000	22446431	21664402	00000000	70440354	

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00050	30200000	00000000	22446431	33224402	00000000	70440354	30300464	00000000	22446431	44564402	
00062	00000000	70440354	30400014	00000000	22446431	56114402	00000000	70440354	30500600	00000000	
00074	22446431	67454402	00000000	70440354	30601024	00000000	22446432	01014402	00000000	70440354	
00106	30700564	00000000	22446432	12354402	00000000	70440354	31001414	00000000	22446432	23704402	
00120	00000000	70440354	31100000	00000000	22446432	35244402	00000000	70440354	31200060	00000000	
00132	22446432	46604402	00000000	70440354	31300000	00000000	22446432	60134402	00000000	70440354	
00144	31400544	00000000	22446432	71474402	00000000	70440354	31501140	00000000	22446433	03034402	
00156	00000000	70440354	31600610	00000000	22446433	14374402	00000000	70440354	31700734	00000000	
00170	22446433	25724402	00000000	70440354	32000360	00000000	22446433	37264402	00000000	70440354	
00202	32101400	00000000	22446433	50624402	00000000	70440354	32200434	00000000	22446433	62154402	
00214	00000000	70440354	32300000	00000000	22446433	73514402	00000000	70440354	32400000	00000000	
00226	22446434	05054402	00000000	70440354	32500000	00000000	22446434	16414402	00000000	70440354	
00240	32600100	00000000	22446434	27744402	00000000	70440354	32701464	00000000	22446434	41304402	
00252	00000000	70440354	33001474	00000000	22446434	52644402	00000000	70440354	33100030	00000000	
00264	22446434	64204402	00000000	70440354	20000000	00000000	22446434	75534402	00000000	70440354	
00276	20141374	00000000	22446435	07074402	00000000	70440354	20200064	00000000	22446435	20434402	
00310	00000000	70440354	20301710	00000000	22446435	31774402	00000000	70440354	20400474	00000000	
00322	22446435	43324402	00000000	70440354	20541450	00000000	22446435	54664402	00000000	70440354	
00334	20601464	00000000	22446435	66224402	00000000	70440354	20700444	00000000	22446435	77554402	
00346	00000000	70440354	21000350	00000000	22446436	11114402	00000000	70440354	21101454	00000000	
00360	22446436	22454402	00000000	70440354	21201430	00000000	22446436	34014402	00000000	70440354	
00372	21300074	00000000	22446436	45344402	00000000	70440354	21400000	00000000	22446436	56704402	
00404	00000000	70440354	21500010	00000000	22446436	70244402	00000000	70440354	21600000	00000000	
00416	22446437	01574402	00000000	70440354	21701340	00000000	22446437	13134402	00000000	70440354	
00430	22001024	00000000	22446437	24474402	00000000	70440354	22101460	00000000	22446437	36034402	
00442	00000000	70440354	22201004	00000000	22446437	47374402	00000000	70440354	22300750	00000000	
00454	22446437	60724402	00000000	70440354	22401510	00000000	22446437	72264402	00000000	70440354	
00466	22501204	00000000	22446440	03624402	00000000	70440354	22600000	00000000	22446440	15154402	
00500	00000000	70440354	22700020	00000000	22446440	20514402	00000000	70440354	23000020	00000000	
00512	22446440	40054402	00000000	70440354	23100000	00000000	22446440	51414402	00000000	70440354	
00524	23201150	00000000	22446440	62744402	00000000	70440354	23301214	00000000	22446440	74304402	
00536	00000000	70440354	23400460	00000000	22446441	03044402	00000000	70440354	23500000	00000000	
00550	22446441	17174402	00000000	70440354	23601154	00000000	22446441	30534402	00000000	70440354	
00562	23700000	00000000	22446441	42074402	00000000	70440354	24000000	00000000	22446441	53434402	
00574	00000000	70440354	24100454	00000000	22446441	64764402	00000000	70440354	24200504	00000000	
00606	22446441	76324402	00000000	70440354	24301524	00000000	22446442	07664402	00000000	70440354	
00620	24401154	00000000	22446442	21214402	00000000	70440354	24501634	00000000	22446442	32554402	
00632	00000000	70440354	24600014	00000000	22446442	44114402	00000000	70440354	24700014	00000000	
00644	22446442	55454402	00000000	70440354	25000000	00000000	22446442	67014402	00000000	70440354	
00656	25100010	00000000	22446443	00344402	00000000	70440354	25201220	00000000	22446443	11704402	
00670	00000000	70440354	25300434	00000000	22446443	23244402	00000000	70440354	25400000	00000000	
00702	22446443	34574402	00000000	70440354	25500000	00000000	22446443	46134402	00000000	70440354	
00714	25600514	00000000	22446443	57474402	00000000	70440354	25700564	00000000	22446443	71024402	
00726	00000000	70440354	26000500	00000000	22446444	02364402	00000000	70440354	26100520	00000000	
00740	22446444	13724402	00000000	70440354	26201454	00000000	22446444	25264402	00000000	70440354	
00752	26300660	00000000	22446444	36614402	00000000	70440354	26401724	00000000	22446444	50154402	
00764	00000000	70440354	26500340	00000000	22446444	61514402	00000000	70440354	26601174	00000000	
00776	22446444	73054402	00000000	70440354	26700154	00000000	22446445	04404402	00000000	70440354	
01010	27000350	00000000	22446445	15744402	00000000	70440354	27100000	00000000	22446445	27304402	
01022	00000000	70440354	27200544	00000000	22446445	40634402	00000000	70440354	27301200	00000000	
01034	22446445	52174402	00000000	70440354	27401250	00000000	22446445	63534402	00000000	70440354	
01046	27500550	00000000	22446445	15074402	00000000	70440354	27600500	00000000	22446446	06424402	
01060	00000000	70440354	27700674	00000000	22446446	17774402	00000000	70440354	30000610	00000000	
01072	22446446	31324402	00000000	70440354	30101570	00000000	22446446	42664402	00000000	70440354	
01104	30200000	00000000	22446446	54214402	00000000	70440354	30300464	00000000	22446446	65554402	
01116	00000000	70440354	30400014	00000000	22446446	77114402	00000000	70440354	30500600	00000000	
01130	22446447	10444402	00000000	70440354	30601024	00000000	22446447	22004402	00000000	70440354	
01142	30700564	00000000	22446447	33344402	00000000	70440354	31001414	00000000	22446447	44704402	

FORM 1411-3
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01154	00000000	70440354	31100000	00000000	22446447	96234402	00000000	70440354	31200060	00000000
01166	22446447	67574402	00000000	70440354	31300000	00000000	22446450	01134402	00000000	70440354
01200	31400544	00000000	22446450	12474402	00000000	70440354	31501130	00000000	22446450	24024402
01212	00000000	70440354	31900614	00000000	22446450	39364402	00000000	70440354	31700734	00000000
01224	22446450	46724402	00000000	70440354	32000360	00000000	22446450	60264402	00000000	70440354
01236	32101400	00000000	22446450	71014402	00000000	70440354	32200440	00000000	22446451	03154402
01250	00000000	70440354	32300000	00000000	22446451	14514402	00000000	70440354	32400000	00000000
01262	22446451	26044402	00000000	70440354	32500000	00000000	22446451	37404402	00000000	70440354
01274	32600100	00000000	22446451	50744402	00000000	70440354	32701464	00000000	22446451	62304402
01306	00000000	70440354	33001474	00000000	22446451	73034402	00000000	70440354	33100030	00000000
01320	22446452	05174402	00000000	70440354	20000000	00000000	22446452	16534402	00000000	70440354
01332	20141374	00000000	22446452	30074402	00000000	70440354	20200064	00000000	22446452	41424402
01344	00000000	70440354	20301710	00000000	22446452	52764402	00000000	70440354	20400474	00000000
01356	22446452	64324402	00000000	70440354	20541450	00000000	22446452	75664402	00000000	70440354
01370	20601470	00000000	22446453	07214402	00000000	70440354	20700444	00000000	22446453	20554402
01402	00000000	70440354	21000350	00000000	22446453	32114402	00000000	70440354	21101460	00000000
01414	22446453	43444402	00000000	70440354	21201424	00000000	22446453	55004402	00000000	70440354
01426	21300074	00000000	22446453	66344402	00000000	70440354	21400000	00000000	22446453	77674402
01440	00000000	70440354	21500010	00000000	22446454	11234402	00000000	70440354	21600000	00000000
01452	22446454	22574402	00000000	70440354	21701340	00000000	22446454	34134402	00000000	70440354
01464	22001024	00000000	22446454	45404402	00000000	70440354	22101460	00000000	22446454	57024402
01476	00000000	70440354	22201004	00000000	22446454	70364402	00000000	70440354	22300750	00000000
01510	22446455	01734402	00000000	70440354	22401510	00000000	22446455	13254402	00000000	70440354
01522	22501154	00000000	22446455	24614402	00000000	70440354	22600000	00000000	22446455	36154402
01534	00000000	70440354	22700020	00000000	22446455	47514402	00000000	70440354	23000020	00000000
01546	22446455	61044402	00000000	70440354	23100000	00000000	22446455	72404402	00000000	70440354
01560	23201150	00000000	22446456	03744402	00000000	70440354	23301214	00000000	22446456	15304402
01572	00000000	70440354	23400460	00000000	22446456	20034402	00000000	70440354	23500000	00000000
01604	22446456	40174402	00000000	70440354	23601154	00000000	22446456	51534402	00000000	70440354
01616	23700000	00000000	22446456	93004402	00000000	70440354	24000000	00000000	22446456	74424402
01630	00000000	70440354	24100454	00000000	22446457	05764402	00000000	70440354	24200504	00000000
01642	22446457	17324402	00000000	70440354	24301524	00000000	22446457	30654402	00000000	70440354
01654	24401174	00000000	22446457	42214402	00000000	70440354	24501030	00000000	22446457	53554402
01666	00000000	70440354	24900014	00000000	22446457	65104402	00000000	70440354	24700014	00000000
01700	22446457	76444402	00000000	70440354	25000000	00000000	22446460	10004402	00000000	70440354
01712	25100010	00000000	22446460	21344402	00000000	70440354	25201220	00000000	22446460	32674402
01724	00000000	70440354	25300434	00000000	22446460	44234402	00000000	70440354	25400000	00000000
01736	22446460	55574402	00000000	70440354	25500000	00000000	22446460	67124402	00000000	70440354
01750	25600514	00000000	22446461	00464402	00000000	70440354	25700564	00000000	22446461	12024402
01762	00000000	70440354	26000500	00000000	22446461	23364402	00000000	70440354	26100520	00000000
01774	22446461	34724402	00000000	70440354	26201454	00000000	22446461	46254402	00000000	70440354
02006	26300560	00000000	22446461	57614402	00000000	70440354	26401124	00000000	22446461	71154402
02020	00000000	70440354	26500340	00000000	22446462	02504402	00000000	70440354	26601174	00000000
02032	22446462	14044402	00000000	70440354	26700154	00000000	22446462	25404402	00000000	70440354
02044	27000350	00000000	22446462	36744402	00000000	70440354	27100000	00000000	22446462	50274402
02056	00000000	70440354	27200544	00000000	22446462	61634402	00000000	70440354	27301200	00000000

FILE 1, RECORD 3, 1080 BIN WORDS.

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00024	00000000	70440354	27700674	00000000	22446463	40764402	00000000	70440354	30000604	00000000
00036	22446463	52334402	00000000	70440354	30101570	00000000	22446463	63654402	00000000	70440354
00050	30200000	00000000	22446463	75214402	00000000	70440354	30300464	00000000	22446464	06554402
00062	00000000	70440354	30400014	00000000	22446464	20104402	00000000	70440354	30500600	00000000
00074	22446464	31444402	00000000	70440354	30601024	00000000	22446464	43004402	00000000	70440354
00106	31700564	00000000	22446464	54344402	00000000	70440354	31001420	00000000	22446464	65674402
00120	00000000	70440354	31100000	00000000	22446464	77234402	00000000	70440354	31200060	00000000
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FORM 141113 PRINTED IN U.S.A.

00144	31400544	00000000	22446465	33464402	00000000	70440354	31501160	00000000	22446465	45024402	
00156	00000000	70440354	31600614	00000000	22446465	56364402	00000000	70440354	31700734	00000000	
00170	22446465	67714402	00000000	70440354	32000354	00000000	22446466	01254402	00000000	70440354	
00202	32101400	00000000	22446466	12614402	00000000	70440354	32200440	00000000	22446466	24154402	
00214	00000000	70440354	32300000	00000000	22446466	35504402	00000000	70440354	32400000	00000000	
00226	22446466	47044402	00000000	70440354	32500000	00000000	22446466	60404402	00000000	70440354	
00240	32600100	00000000	22446466	71734402	00000000	70440354	32701464	00000000	22446467	03274402	
00252	00000000	70440354	33001474	00000000	22446467	14634402	00000000	70440354	33100030	00000000	
00264	22446467	26164402	00000000	70440354	20000000	00000000	22446467	37524402	00000000	70440354	
00276	20141374	00000000	22446467	51064402	00000000	70440354	20200064	00000000	22446467	62424402	
00310	00000000	70440354	20301710	00000000	22446467	73764402	00000000	70440354	20400474	00000000	
00322	22446470	05314402	00000000	70440354	20541450	00000000	22446470	16654402	00000000	70440354	
00334	20601464	00000000	22446470	30214402	00000000	70440354	20700444	00000000	22446470	41544402	
00346	00000000	70440354	21000350	00000000	22446470	53104402	00000000	70440354	21101454	00000000	
00360	22446470	64444402	00000000	70440354	21201430	00000000	22446470	76004402	00000000	70440354	
00372	21300100	00000000	22446471	07334402	00000000	70440354	21400000	00000000	22446471	20674402	
00404	00000000	70440354	21500010	00000000	22446471	32234402	00000000	70440354	21600000	00000000	
00416	22446471	43574402	00000000	70440354	21701340	00000000	00000000	00000000	00000000	00000000	
00430	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00442	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00454	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00466	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00500	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00512	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00524	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00536	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00550	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00562	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00574	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00606	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00620	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00632	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00644	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00656	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00670	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00702	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00714	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00726	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00740	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00752	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00764	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00776	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
01010	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
01022	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
01034	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
01046	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
01060	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
01072	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
01104	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
01116	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
01130	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
01142	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
01154	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
01166	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
01200	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
01212	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
01224	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
01236	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	

FORM 1411-3
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01332  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
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01402  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
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01426  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
01440  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
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01476  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
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01522  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
01534  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
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01560  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
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01630  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
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01654  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
01666  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
01700  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
01712  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
01724  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
01736  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
01750  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
01762  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
01774  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
02006  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
02020  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
02032  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
02044  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
02056  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000

FILE  1, RECORD  4,  1080 BIN WORDS.
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00120  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
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00144  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
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00170  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
00202  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
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00226  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
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00240	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
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00310	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00322	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00334	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00346	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00360	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00372	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00404	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00416	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00430	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00442	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00454	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00466	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00500	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00512	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00524	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00536	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00550	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00562	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00574	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00606	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00620	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00632	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00644	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00656	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00670	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00702	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00714	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00726	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00740	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00752	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00764	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
00776	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
01010	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
01022	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
01034	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
01046	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
01060	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
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FORM 1411 3
PRINTED IN U.S.A.

01344	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
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01414	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
01426	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
01440	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
01452	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
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01604	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
01616	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
01630	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
01642	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
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01666	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
01700	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
01712	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
01724	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
01736	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
01750	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
01762	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
01774	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
02006	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
02020	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
02032	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
02044	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111
02056	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111	11111111

END-OF-FILE

7-31

FORM 1411-3

PRINTED IN U.S.A.

ATTACHMENT 8

CORRESPONDENCE

THIS FORM MUST BE COMPLETED BY TYPEWRITER

DATE RECEIVED _____

SC	017 PROGRAM NO. Q776	COMPUTER PROGRAM ABSTRACT	01 14 CATEGORY	01 16 SUB CATEGORY

01 20 TITLE OF PROGRAM (62 CHARACTERS MAXIMUM) ALSEP Principal Investigator Experiment Formats	01 72 SYMBOLIC NAME (9 CHARACTERS MAXIMUM) ALSEPPI	PARENT PROGRAM		
		02 14 CATEGORY	02 16 SITE	02 19 PROGRAM NO.

02 27 LANGUAGE NO. 1 CPS32	02 32 LANGUAGE NO. 2	02 37 KEY WORDS (8 MAXIMUM, SEPARATED BY COMMAS) ALSEP, Disk File

WHOM TO CONTACT ABOUT THE PROGRAM					05 48 STATUS	05 49
05 14 CONTACT	05 28 SITE	05 31 ORGN. CODE	05 39 PROJECT NO.	05 45 NASA CENTER	[X] A. UNDER DEVELOPMENT [ ] B. OPERATIONAL [ ] C. COMPLETED	[ ] A. THIS PROGRAM IS NOT FOR SHARING [ ] B. LIMITED SHARING (SEE ABSTRACT)
McCormick	MSC	FD56	8048			

DATES		05 58 REVISION CODE	TIME AND COST FOR DEVELOPMENT			
05 50 INITIATED	05 54 COMPLETED	[ ] A. REVISION [ ] B. CANCELLATION	05 59 MAN-MONTHS	05 64 MACHINE HOURS	05 69 COMPUTER TYPE	05 74 TOTAL COST (DOLLARS)
0172			2.5	6.0	3200	

CARD NUMBER	COLUMN 14 ABSTRACT	ELITE MARGIN	PICA MARGIN
06	This is a program to format principal investigator tapes on		
07	the 3200 computer from data stored on the 821 Disk File.		
08	This program is part of the total ALSEP data processing		
09	package on the CDC 3200 computer. (TM-71-FD56-304/Rodriguez)		
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RELATED DOCUMENTATION (66 CHARACTERS MAXIMUM, SEPARATE EACH REF. BY COMMAS)

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS 77058

REPLY TO ATTN OF: 71-FD56-302

3 DEC 1971

Lockheed Electronics Company
Attn: Data Processing Dept.
Mail Code C30
16811 El Camino Real
Houston, Texas 77058

Subject: Implementation Plan for Disk ALSEP

The Program Document for the proposed ALSEP Data Processing System on the CDC 3200 computer has been reviewed. This proposed system for processing ALSEP data on the CDC 3200 computer using the 821 disk file as a mass storage device has been approved.

The contractor is requested to analyze and prepare a schedule; including all major milestones, for implementing this proposed system. Since the system consists of several different functions or programs to be written this implementation schedule should indicate completion dates for each separate function.

Any questions concerning this request should be directed to the NASA Technical Submonitor, Don McCormick, FD56, extension 5548. All work done on this request should be charged to project No. 8048S.

Fred Fulton

FD56/DLMcCormick:stb:12-2-71:5548

RECEIVED DEC 3, 1971 LEC DATA PROCESSING DEPT.

12-20-71

8-2

16811 EL CAMINO REAL
HOUSTON, TEXAS 77058
TELEPHONE 713-488-0080

LOCKHEED ELECTRONICS COMPANY, INC.
HOUSTON AEROSPACE SYSTEMS DIVISION

In reply refer to:
DPD#0467

December 9, 1971

TO: FD5/Chief, Data Processing Branch

FROM: LEC/Manager, Data Processing Department

SUBJECT: Technical Memorandum 71-FD56-302, Implementation Plan for Disk ALSEP

Subject Technical Memorandum was received by the Data Processing Department on December 3, 1971.

Overall responsibility for the Disk ALSEP implementation has been assigned to Cliff Hutchinson of the Telemetry and Special Applications Section. It is anticipated that the actual implementation will involve a dual NASA-LEC programming effort. Details will be worked out with Mr. McCormick and will be considered in the implementation plan. This plan will be completed and presented for your review on December 20, 1971.

Please direct any additional communications regarding this task to Mr. Hutchinson, 333-4990.

As directed, all work done on this project will be charged to project number 8048S.

Jack I. Pickren

JIP:JDG:pm

cc: L. Turberville/FD56
D. L. McCormick/FD56
K. J. Langenberg/C18
C. E. Hutchinson/C30
J. D. Garrett/C30

16811 EL CAMINO REAL
HOUSTON, TEXAS 77058
TELEPHONE 713-488-0080

LOCKHEED ELECTRONICS COMPANY, INC.
HOUSTON AEROSPACE SYSTEMS DIVISION

In reply refer to:
DPD#0480

December 17, 1971

TO: FD5/Chief, Data Processing Branch

FROM: LEC/Manager, Data Processing Department

SUBJECT: Technical Memorandum 71-FD56-302 & DPD#0467, Implementation Plan for Disk ALSEP

As specified in the subject documents, attached hereto is the completed implementation plan for your approval. If no reply to this memorandum is received by December 29, 1971, it will be assumed to be accepted as is.

Due to the time line established, design work will begin immediately.

Jack I. Pickren

JIP:JDG:pm

cc: L. Turberville/FD56
D. L. McCormick/FD56
K. J. Langenberg/C18
C. E. Hutchinson/C30
J. D. Garrett/C30

Attachment

Implementation Plan for ALSEP Processing on CDC 3200

Implementation of the ALSEP data processing system on the CDC 3200 computer will be a joint LEC-NASA venture which will require the full-time effort of four individuals for approximately four months. The following individuals will make up the team responsible for implementing the processing package:

Don McCormick/NASA
Margo Hernandez/LEC
Cliff Hutchinson/LEC
Rudy Rodriguez/LEC

Mr. Hutchinson will be the LEC project leader. Mr. McCormick will be the NASA monitor, but will also have programming responsibilities.

The ALSEP data processing system will consist of four main program types and three supplemental programs. The main program types and the individuals responsible for writing them are:

Decommutation	Margo Hernandez
Time Edit (TE)	Cliff Hutchinson
Passive Seismic	Don McCormick
Format PI Tapes	Rudy Rodriguez

Mr. Hernandez will also be responsible for writing the supplemental programs for (1) updating the directory, (2) deleting records on the disk, and (3) a tape-to-disk write routine.

Figure 1 is a bar chart which depicts the proposed implementation schedule. April 30 has been established as a target date for completion of the overall project. Each main program is broken down into an analysis, coding, and checkout phase. A design review meeting will be held for each program prior to the beginning of actual coding to review detailed flow charts in order to better coordinate individual efforts.

It is planned to have all of the individual programs coded and most of them checked out prior to the Apollo 16 mission. After the mission, checkout will be completed on the remaining programs. The programs will be integrated into one processing system, and the system validated as one package.

Table I is a chronological list of events and milestones scheduled for the implementation phase. Since there are four major programs involved in the project, as each one is completely checked out by itself, that will be considered a major milestone.

Since the new system on the CDC 3200 is intended to replace the current UNIVAC 1108 system, it is mandatory that the new system be completely checked out and validated prior to complete conversion. Since the final output for the present and new ALSEP processing systems will be identical, basic validation will consist of comparing final output from both systems run over the same 96-hour ALSEP data period. The comparison will be made for each ALSEP package. The existing UNIVAC 1108 data quality check routines will also be run over both sets of data to additionally verify that both systems yield identical results.

TABLE I

DATE	MILESTONE	EVENT
January 12	(1)	Design review meeting for Decom and Passive programs
January 14		Analysis complete on Decom
January 19	(2)	Design review for T.E. and P.I.
January 21		Analysis complete on Passive Seismic and P.I.
January 28		Coding complete on Decom
January 28		Analysis complete on T.E.
February 11	(3)	Checkout complete on Decom
February 18		Coding complete on Passive & P.I.
February 18		Coding complete on Directory updat
February 25		Coding complete on T.E.
February 25		Checkout complete on Directory upd
March 9		Coding complete on Restore routine
March 17	(4)	Checkout complete on Passive Seismic and P.I.
March 17-April 7		Support Apollo 16 Mission
April 10	(5)	Completion of supplemental progra
April 17	(6)	Checkout complete on Time-Edit
April 30	(7)	Complete integration & validation of system

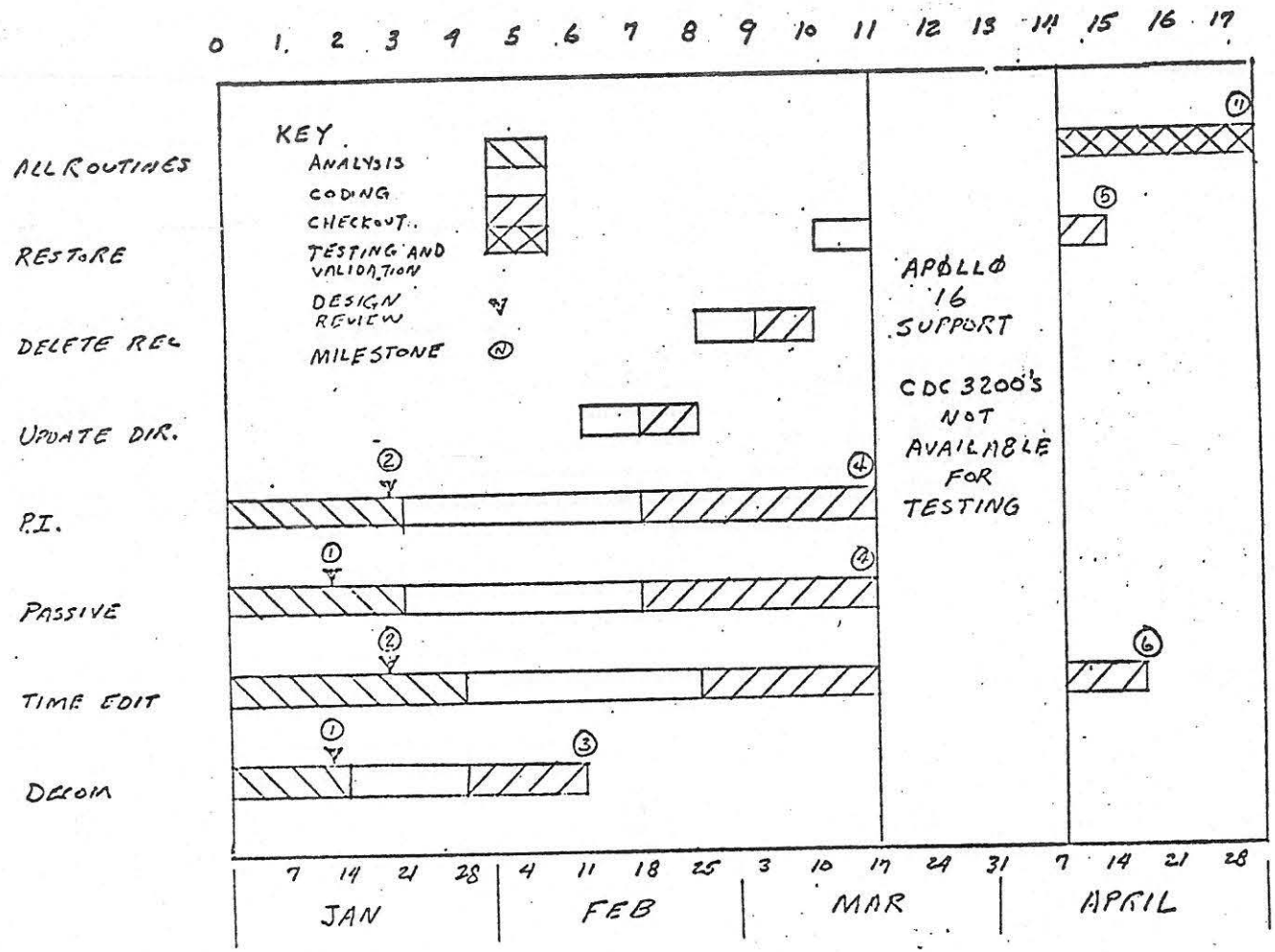

FIGURE 1 Implementation Schedule for ALSEP Processing on CDC 3200

Logged
Date

DEPARTMENTAL COMMUNICATION 72-SRS-079

TO J. D. Garrett DEPT./ORGN. 628-10 BLDG./ZONE LEC-8 PLANT/FAC. HASD DATE 6/28/72

FROM K. J. Langenberg DEPT./ORGN. 628-60 BLDG./ZONE 12 PLANT/FAC. HASD EXT. 3395

SUBJECT: Packing Density for DISK ALSEP Tapes

All scientific data tapes prepared for the ALSEP Principal Investigators using the DISK ALSEP processing system should be written at 800 bits per inch.

The one exception will be tapes created from the Charged Particle Lunar Environment Experiment (CPLEE). These tapes will be 556. It should be noted that these tapes are created on special request only, and are not part of the normal ALSEP processing task.

Any questions regarding this requirement should be directed to Jack Howell at 483-3395.

K. J. Langenberg

CONCURRENCE
W. D. Poates

KJL(JLH):se

cc: FD5/J. C. Currie 9CC
D. McCormick
LEC/C. E. Ariens
C. F. Iven
J. L. Howell
FD5/J. Wakeland

Completed on 6/30/72

INTERDEPARTMENTAL COMMUNICATION DPD#0738

TO K. J. Langenberg DEPT./ORGN. 628-60 BLDG./ZONE C18 PLANT/FAC. HASD DATE 7-7-72

FROM J. D. Garrett DEPT./ORGN. 628-10 BLDG./ZONE C30 PLANT/FAC. HASD EXT. 153

SUBJECT: IDC 72-SRS-079, Packing Density for Disk ALSEP Tapes

Subject memorandum was received on July 3, 1972.

Rudy Rodriguez has been assigned responsibility for the programming support for the program ALSEPPI. This program has been modified to output the PI tape for the Charged Particle Experiment (CPLEE) at 556 BPI as requested. This change is included in the program currently being validated.

Work on this task has been charged to project number 8048A. Questions related to this task should be directed to Rudy at 333-4875, extension 116, or Cliff Hutchinson, extension 115.

J. D. Garrett

JDG:pm

cc: J. E. Wakeland/FD52
J. C. Currie/FD53
D. L. McCormick/FD52
J. I. Pickren/C30
C. F. Iven/C18
C. E. Ariens/C18
J. L. Howell/C18
R. M. Rodriguez/C30

[redacted] LEC/628-60/464

INTERDEPARTMENTAL CORRESPONDENCE

		DEPT./ CODE	BLDG./ ZONE	PLANT/ FAC.	DATE
TO	J. I. Pickren	628-10	TRW/H3	LEC/HASD	4/27/72
FROM	A. J. Zwolinski	628-60	12	LEC/HASD	EXT. 3395

SUBJECT: Data Processing Support Requirements for the Apollo Lunar Surface Experiments Package (ALSEP)

The Computation and Analysis Division has the requirement to provide data processing support for the ALSEP on Apollo 17. This task will begin when the package is deployed and activated, by the crew, in December 1972.

With the exception of the Heat Flow Experiment, this ALSEP contains a new complement of experiments. Software must be developed to decommutate data from SIDE analog tapes, and create individual digital tapes for each Principal Investigator.

Included as an attachment to this memorandum is a Data Processing Requirements document for the Apollo 17 ALSEP. This document contains the necessary information for all the scheduled experiments except the Lunar Seismic Profiler experiment. Processing requirements for this experiment are being finalized, and will be documented and released as appendices to the original requirements document.

All efforts expended on this task should be charged to project number 8048, and it's completion is requested prior to October 2, 1972. Questions regarding these requirements should be directed to Jack Howell at 483-3395.

A. J. Zwolinski

AJZ(JLH):se

Enclosure

cc: FD5/F. Fulton
D. Peates
J. Wakeland
J. Currie
TD5/R. Eason
LEC/D. Garrett THIS COPY FOR
K. J. Langenberg

ATTACHMENT 9

DIAGNOSTIC MESSAGES

DIAGNOSTIC MESSAGES

The program prints the following diagnostic messages on the typewriter:

Where * = Comments on previous message
XXX = Program supplies the values

"ERROR IN MISSION (NUMBER) ID-XXX"
"CANNOT CONNECT TO CARDREADER"
"READ ERROR ON CARD INPUT. STAT-XXX CARD-XXX"
"CARD ERROR ABORT---TRY AGAIN, OR NOTIFY REQUESTER"
"INVALID EXPERIMENT CODE...XXX"
"CARD ERROR ABORT."
"DIRECTORY READ ERROR---(GO)"

* Push GO if you want to keep trying.

"SEEK ERROR HALT"

* Seek error on directory read, tried 9 times.

"MOUNT TAPE 1 FOR DAY-XXX,...PUSH GO"
"WRONG TAPE, PLEASE CORRECT, PUSH GO"
"BAD HEADER RECORDS ON UNIT 1, IF CAN FIX-PUSH GO"
"SAVE TAPE ON UNIT XXX, MOUNT NEW TAPE, PUSH GO"

* If tape not needed, push GO.

"CANNOT PROCESS CARD-XXX, DAYS-XXX IS PASSED"
"JOB COMPLETED...ALSEPPI"
"CHECK TAPE UNIT X, CORRECT AND PUSH GO"