PIONEER PRODUCTION DATA PROCESSING PROCEDURES GUIDE

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SECTION 1 – INTRODUCTION

The PIONEER Production Data Processing Procedure's Guide was written for the data technician responsible for the PIONEER production data processing for the PIONEER–10 and PIONEER–11 cosmic ray experiments. This procedure's guide should be utilized with the existing user's guides described in the reference section of this document. The purpose of this procedure's guide is to provide specific information designed to explain and simplify the PIONEER data processing system. The appendix section contains examples of catalog listings, CLIST executions, and standard forms that are necessary in the PIONEER data processing system. Data flow diagrams are also provided for an overview of the PIONEER data processing system. Knowledge of the IBM 3081 Job Control Language (JCL) and Time Sharing Option (TSO) are helpful in understanding portions of this document. In order to submit jobs and execute CLISTs, it is necessary to be concatenated to the SB#HP and SB#PR CLIST libraries (a copy of this concatenation method can be obtained for the user's CLIST library from SB#HP.LIB.CLIST(START)).

SECTION 2 – EXPERIMENT DATA RECORD (EDR) TAPES

2.1 DESCRIPTION OF EDR TAPES

EDR tapes are received from Ames Research Center (ARC), Moffett Field, CA. Each tape contains several days' data for either the PIONEER F or the PIONEER G satellite. GSFC/CRT EDRs are 9–track, unlabeled (NL), 800–bpi data tapes containing four files of fixed–length records for each day of data as follows.

Logistics	(file 1)
Command data (not processed)	(file 2)
Attitude data (not processed)	(file 3)
Experiment data	(file 4)

The EDR tape header label record for each file on multiday EDR tapes should contain the satellite ID, GSFC/CRT as experimenter, the date the data was processed at ARC, and the Julian day number for the data contained on that file. If the header label record information is incorrect, PIODRP will reject the EDR tape. See Appendix I for an EDR tapescan example for DCB and header information.

2.2 STAGING OF EDR TAPES

There are 15 permanently assigned TLS slot numbers with corresponding volume numbers that are used for temporary EDR tape processing. The volume numbers are E02101 through E02115, the corresponding slot numbers are 24253 through 24267. Use the following steps for staging EDR tapes:

1) Unpack the tapes from boxes.

2) Check the tapes for physical damage.

3) Remove all write rings from the backs of the tapes.

4) Remove the tapes from the canisters and attach plastic straps.

5) Mark the tape strap on the side with a grease pencil indicating the satellite ID and the days contained on the tape.

6) Sort the tapes by satellite ID.

7) Put the tapes in time–sequence order for each satellite.

8) Assign temporary volume numbers in ascending order using the log book located in the Cosmic Ray data room. Make sure the tapes are in time sequence order for each satellite. Make an entry in the log book describing the satellite, date received, days on the tape, and the assigned volume and slot numbers. Also, indicate if the EDR is a single day tape (T), or a multiday tape (F). An example log entry follows.

DAYS	PIONEER F VOLUME #	SLOT #	1/1/84 SINGLE-DAY (T or F)
350 – 353	E02101	~~24253~~ look	F
354 – 356	E02102	~~24254~~ when	F
357 – 359	E02103	~~24255~~ TLS	F

9) Prepare tape labels with the assigned volume numbers and affix to the front of the corresponding tape.

10) Take the EDR tapes to Building 1 tape library and place in the appropriate slots.

11) File the old EDR tapes in tape staging and storage boxes. Arrange the tapes by satellite ID and in time sequence order. See Section 16 for tape staging and storage procedures.

2.3 PROBLEMS WITH THE EDR TAPES

2.3.1 Running TAPESCAN

Whenever an EDR tape is rejected by PIODRP, a TAPESCAN should be run to determine the problem. To run a TAPESCAN on EDR tapes, use the following procedure:

1) Check the physical tape label or the record log book to determine how may days' worth of data should be on the tape.

2) Calculate the maximum number of end–of–volumes to be processed (MAXEOV). Single–day tapes require MAXEOV1, multiday tapes are calculated by adding one day to the number of days, such as:

   2 days = MAXEOV3
   3 days = MAXEOV4

3) TAPESCAN has been simplified in a CLIST called TPSCAN, which is in SB#HP.LIB.CLIST. To execute TPSCAN, enter the following:

   TPSCAN tape# TUNIT(800) MAXEOV(MAXEOV#)

   where tape# is the volume number of the EDR tape to be scanned, and MAXEOV# is the MAXEOV determined in the previous step. The output from this TAPESCAN will go to the hold queue.

4) Look at the printout and check the header label record for the correct satellite ID, experimenter ID, block size, and I/O errors.

   Refer to Section 2.1, Description of EDR tapes.

2.3.2 Reordering EDR Tapes

To reorder EDR tapes contact Rhonda Thompson or Tnise Young, Bendix Corp., Ames Research Center (ARC). The telephone number is ~~8-448-5714.~~ Provide the satellite ID, the days on the tape, and the EDR tape problem, if known.

~~8-604-3026~~
Krev Jednorozec
(415-604-3026)
Data Processing supervisor

Sometimes, ARC will request that the EDR tape be returned. In this case, mail the EDR tape(s) and TAPESCAN(s) to:

Ames Research Center
Bendix Corp.
c/o Tnise Young
P.O. Box 67
Mail Code 244-8
Moffett Field, CA 94035

SECTION 3 – PIONEER F/G DATA REDUCTION PROGRAM (PIODRP)

3.1 PURPOSE OF PIODRP PROGRAM

The purpose of the PIONEER F/G data reduction program (PIODRP) is to read the PIONEER F/G EDR tapes and create time-ordered PHA, RATES, and CATALOG tapes that contain GSFC/CRT experiment data and related spacecraft information. (Refer to reference 1, pp. I-6 through I-10 for more details.)

3.2 SETTING UP DATA CARDS FOR PIODRP PROGRAM

The volume numbers assigned in the staging of the EDR tapes are used for setting up PIODRP data cards. (Refer to reference 1, pp. I-10 through I-17.)

3.2.1 DATAF and DATAG Data Cards

Edit the member DATAF for PIONEER-F or DATAG for PIONEER-G contained in SB#PR.LIB.CNTL. Examples follow.

SB#PR.LIB.CNTL(DATAF)

```
&OPTION IDRUN='F',HCPUTM=2,HIOTM=5,QMERGE=T,QPRTID=T, &END
&EDRTAP DTSLOT='E02101',SINGLE=F, &END
&EDRTAP DTSLOT='E02102',SINGLE=F, &END
&EDRTAP DTSLOT='E02103',SINGLE=F, &END
```

SB#PR.LIB.CNTL(DATAG)

```
&OPTION IDRUN='G',HCPUTM=2,HIOTM=5,QMERGE=T,QPRTID=T, &END
&EDRTAP DTSLOT='E02104',SINGLE=F, &END
&EDRTAP DTSLOT='E02105',SINGLE=F, &END
&EDRTAP DTSLOT='E02106',SINGLE=F, &END
```

3.2.2 &OPTION Data Card

The &OPTION card usually remains the same for standard PIONEER production. However, sometimes more CPU or I/O time is required. In this case, increase the HCPUTM and the HIOTM parameters. If special processing is required, such as Quick-Look mode, refer to reference 1, pp. I-14 through I-16.

3.2.3 &EDRTAP Data Card

The &EDRTAP card changes are necessary for standard production processing. This card tells PIODRP what tapes to process. DTSLOT references the volume number that was previously assigned. SINGLE=T refers to a single day tape, SINGLE=F refers to a multiday tape; the latter is the normal procedure. (Refer to reference 1, pp. I-17.)

3.3 SUBMITTING PIODRP

Before submitting PIODRP, check a current DRS catalog listing for at least two blank RATE and two blank PHA tapes. PIODRP requires blank tapes to write data. If blank tapes need to be added to the DRS catalog, refer to Section 4.3 on "Adding Blank PHA and RATE Tapes to the DRS Catalogs" and "DRS Maintenance Procedures."

PIODRP is submitted CLASS=E for overnight processing. The JCL for PIODRP is contained in the data set SB#PR.LIB.CNTL, member DRPF for PIONEER-F, and member DRPG for PIONEER-G. The PIODRP members should be edited only by an authorized programmer.

Logon a terminal and profile to PIONEER, SB#PR.

Use STAB to submit PIODRP:

for PIONEER-F:

```
STAB USERIDPF1 TIME(10,0) IOEST(30)
=:LIB(UJC) 70:71 50:51
=:LIB(DRPF) DRPFXA
=:LIB(DATAF)
// EXEC NTSO
ENDINPUT
```

for PIONEER-G:

```
STAB USERIDPG1 TIME(10,0) IOEST(30)
=:LIB(UJC) 70:71 50:51
=:LIB(DRPG)
=:LIB(DATAG)
// EXEC NTSO
ENDINPUT
```

PIODRP for PIONEER-F and PIONEER-G should not execute at the same time. Therefore, when submitting PIODRP for the same overnight processing for PIONEER-F and PIONEER-G use the following procedure:

New procedure

execute piodrp class (?)

∴ default class is F

```
STAB USERIDPF1 TIME(10,0) IOEST(30)
=:LIB(UJC) 70:71 (class F)  90 91  50:51 (class E)
=:LIB(DRPF)
=:LIB(DATAF)
// EXEC RELEASE,PARM=PG1
// EXEC NTSO
ENDINPUT

STAB USERIDPG1 TIME(10,0) IOEST(30)
=:LIB(UJC) 80:81 (class F)  100 101  60:61 (class E)
=:LIB(DRPG)
=:LIB(DATAG)
// EXEC NTSO
ENDINPUT
```

This procedure will submit the PIONEER-F job to run first and then release the PIONEER-G job after successful execution of the PIODRP job for PIONEER-F. This procedure is used only to prevent the two jobs from executing at the same time.

The jobid for a PIONEER-F PIODRP run is PF1 and the jobid for PIONEER-G is PG1. This convention aids in record keeping and filing.

3.4 SIMPLE PROBLEMS WITH THE PIODRP PROGRAM

3.4.1 Abnormal Termination of PIODRP

If PIODRP ABENDs due to an insufficient number of PHA or RATE tapes, then blank PHA and/or RATE tapes must be added. Refer to Section 4.3 on "Adding Blank PHA and RATE Tapes to the DRS Catalogs."

3.4.2 SF22 ABEND Error

The solution is to increase the IOEST time on the JOBCARD.

3.4.3 Job Cancelled Because Needed Data Sets are in Use

This problem arises when two PIODRPs are executing at the same time or when someone else is using the DRS catalogs. Rerun the job, use the RELEASE procedure.

3.4.4 S222 ABEND, Operator Cancelled

There should be an explanation on the job printout. One possible cause is that the volume numbers don't match. In other words, the volume tape label on the tape is wrong, or the volume numbers are wrong in the input card data set. Correct the problem and resubmit.

3.4.5 I/O Exceeded

PIODRP will terminate processing when it exceeds the I/O estimated to process an EDR. In this case, increase the HIOTM parameters on the &OPTION name list card. Refer to Section 3.2 "Setting Up Data Cards for PIODRP."

SECTION 4 – DATA REDUCTION SYSTEM (DRS) CATALOG MAINTENANCE PROCEDURES

4.1 DESCRIPTION OF DRS CATALOGS

There are four DRS catalogs for each satellite that are used in sequential order each time PIODRP is run. In case of an error, it is possible to restore to one of the three previous catalogs. Each time PIODRP updates a DRS catalog, back ups to tape are created. The names of these catalogs and the primary and back up tape volume numbers follow:

PIONEER–F		Primary	Back up
SB#PR.PFDRSCT1.DATA	(catalog 1)	E00493	E00494
SB#PR.PFDRSCT2.DATA	(catalog 2)	E00495	E00496
SB#PR.PFDRSCT3.DATA	(catalog 3)	E00497	E00498
SB#PR.PFDRSCT4.DATA	(catalog 4)	E00499	E00500

PIONEER–G		Primary	Back up
SB#PR.PGDRSCT1.DATA	(catalog 1)	E02393	E02394
SB#PR.PGDRSCT2.DATA	(catalog 2)	E02395	E02396
SB#PR.PGDRSCT3.DATA	(catalog 3)	E02397	E02398
SB#PR.PGDRSCT4.DATA	(catalog 4)	E02399	E02400

For each satellite, there is a pointer data set that contains the DRS catalog number, which is the current version. The next PIODRP runs from the current DRS catalog and so do the catalog listings. The DRS pointer data set is SB#PR.PFDRSCTP.DATA for PIONEER–F and SB#PR.PGDRSCTP.DATA for PIONEER–G.

4.2 LISTING THE CURRENT DRS CATALOGS

To list the DRS catalogs, a CLIST called LSTCAT is used. Simply logon and profile to SB#PR and enter the command LSTCAT. This will submit DRS and FLUX catalog listings for PIONEER–F and PIONEER–G. For a detailed explanation of the DRS catalog listing, refer to reference 1, pp. I–22 and I–23.

4.3 ADDING BLANK PHA AND RATES TAPES TO THE DRS CATALOGS

Using the DRS catalog listings, one can determine the status of the PHA and RATE tapes, the span of data they contain, and those tapes available for reuse. See Appendix A for a sample DRS catalog listing.

The volume numbers reserved for PHA and RATE tapes are:

PIONEER–F

RATE tapes: volume numbers E00300 through E00349
PHA tapes: volume numbers E00401 through E00450

SB#PR.LIB.CNTL
DRSLSTF
DRSLSTG
FCATLST

PIONEER–G

RATE tapes: volume numbers E02601 through E02650
PHA tapes: volume numbers E02301 through E02350

To determine which tapes are available for reuse, use the following procedure:

1) Review the listing of the current DRS catalog for the appropriate satellite.

2) Locate the current range of the tape type, either PHA or RATE, located at the top of the DRS listing for each satellite.

3) Go through the listing of the current tape type and write down all the numbers that are not listed within the specified range.

4) Check the blank tape portion of the listing and remove them from your list. These tapes are already in the blank tape queue.

After determining the tapes available for reuse, QED the appropriate JCL that is contained in the data set SB#PR.LIB.CNTL. The members are DRSADDF or DRSADDG, for PIONEER–F or PIONEER–G, respectively.

The PIONEER–F JCL, DRSADDF, is shown below.

```
//PDRS EXEC OLINKGOH,REGION.GO=100K
//LINK.SYSLIB DD DSN=SB#PR.SBCID.OPIONEER.LOAD,DISP=SHR
//LINK.SYSLIN DD *
  INCLUDE SYSLIB(DRSMNT)
  ENTRY DRSMNT
//GO.FT06F001 DD DCB=(BUFNO=1)
//GO.FT20F001 DD DSN=SB#PR.PFDRSLOG.DATA,DISP=OLD
//GO.FT40F001 DD DSN=SB#PR.PFDRSCTP.DATA,DISP=OLD
//GO.FT41F001 DD DSN=SB#PR.PFDRSCT1.DATA,DISP=OLD
//GO.FT42F001 DD DSN=SB#PR.PFDRSCT2.DATA,DISP=OLD
//GO.FT43F001 DD DSN=SB#PR.PFDRSCT3.DATA,DISP=OLD
//GO.FT44F001 DD DSN=SB#PR.PFDRSCT4.DATA,DISP=OLD
//GO.DATA5 DD *
2F
PHA  RATE
01  05                                  **(first data card)**
E00403      PHA                         **(second data card)**
E00302  E00319  E00321  E00324  E00326   **(third data card)** RATE
// EXEC NTSO
```

There are three data cards to be edited. The first data card reflects the total number of tapes-per-type to be added. The first number indicates PHA tapes and the second, RATE tapes. The second card refers to the PHA tape volume numbers to be entered. Note that there are two spaces between volume numbers. There is also a limit of 10 tapes to be added for each type. The third card refers to the actual RATE tape numbers to be entered. (Refer to reference 1, pp. I-28 through I-33, for further details.)

After editing the data cards, the JCL can be submitted by using the command SUBCR * while in QED. Under normal conditions, this job will execute rather quickly. The output will go to the hold queue.

When the job completes and the return codes are zeroes, run a DRS catalog listing to make sure all tapes specified have been added as requested. If a request was made to add a tape that is already in the DRS catalog, the tape will be rejected and the job will continue with no problem.

4.4 BACKUPS OF PHA AND RATE TAPES

Backups are made of the PHA and RATE tapes updated by each successful execution of PIODRP. A backup is considered complete when a full PHA or RATE tape has been successfully copied to its assigned backup tape. When the backup tape is complete, it is withdrawn from the Building 1 tape library and stored in the south wing, second floor of Building 2.

The RATE and PHA tape backup volume numbers are: See SB#PR.LIB.DATA (PFBKUPS) (PGBKUPS)

PIONEER-F	E00351-E00400	E00451-E00492
PIONEER-G	E02651-E02700	E02351-E02391

Refer to the PIONEER production maintenance log book, PHA or RATE tape section, for a complete list of PHA and RATE tapes with their associated backups. See Appendix B for an example. Also from the log book, you can determine the present backup tape volume number being used. The last backup tape is used over and over again until a PHA or RATE has been completely filled. To determine if a PHA or RATE has been filled, refer to a current DRS catalog listing or the last PIODRP listing.

The JCL for PHA tape backups, DCPYPHA, is contained in SB#PR.LIB.CNTL. See the example data card following for changes required:

```
// EXEC COPYVBS, INVOL=INTAPE, OUTVOL=OUTTAPE
```

where INTAPE is the original PHA tape volume number to be copied and OUTTAPE is the output PHA backup tape volume number.

The JCL for RATE tape backups, DCPYRAT, is contained in SB#PR.LIB.CNTL. See the example data card following for changes required:

```
// EXEC COPYVBS, INVOL=INTAPE, OUTVOL=OUTTAPE
```

where INTAPE is the original RATE tape volume number to be copied and OUTTAPE is the output RATE backup tape volume number.

Submit the jobs for backups and review the listings for errors. If an error occurs on the backup tape, replace the tape with a new tape and label SL, DEN=3, then resubmit the backup copy job.

Occasionally, it becomes necessary to recreate a PHA or RATE tape from its backup. The only change in the appropriate JCL is the INVOL parameter will contain the PHA or RATE backup tape volume number and the OUTVOL parameter will contain the original PHA or RATE tape volume number. The original tape will be a new blank tape labeled SL, DEN=3.

SECTION 5 – FLUX DATA BASE GENERATOR PROGRAM (FLUXDBG)

5.1 PURPOSE OF THE FLUXDBG PROGRAM

FLUXDBG creates a time ordered sequence of summaries of PHA and RATES data. The primary inputs to the program are the RATE and PHA tapes generated by PIODRP. A directory of the Flux summary tapes is maintained in the FLUX catalog that is on disk.

5.2 DESCRIPTION OF THE FLUX TAPES

The Flux tape combines RATE and PHA data into 15–minute summaries called VOLUMES. Each VOLUME is assigned a file number, with file 1 corresponding to Jan. 1 of the base year 1972, 0 hours, 0 minutes, and 0 seconds. Refer to reference 1, p. I–130 for more details.

The Flux tapes are standard label tapes cataloged in the Flux catalog. The data control block (DCB) parameters are as follows:

DCB = (RECFM=VB,LRECL=32008,BLKSIZE=32012) written at DEN=3

When normal or update mode of operation is used, 1100 blocks are written per Flux tape. With replace/insert mode of operation, 1150 blocks per tape are written.

The reserved Flux tape volume numbers are:

PIONEER–F

Volume #s E00501 through E00550

Note: Slot numbers can be obtained by using TLSUPDTE. All Flux tapes that are complete are stored in the south wing of the Building 2.

PIONEER–G

Volume #s E00551 through E00600

Note: Slot numbers can be obtained by using TLSUPDTE. All Flux tapes that are complete are stored in the south wing of the Building 2.

5.3 RUNNING THE FLUXDBG PROGRAM

5.3.1 When to Run FLUXDBG

After PIODRP has successfully processed all EDR tapes up to date, FLUXDBG can be run to update the Flux data base. FLUXDBG is normally run after all the EDR tapes have been run through PIODRP at the end of each month. However, FLUXDBG can be run at any time after PIODRP processing. Usually, FLUXDBG is run in the update or normal mode of operation. However, due to bad EDR tapes and reprocessed EDRs, it sometimes becomes necessary to run FLUXDBG in the replace/insert mode of operation.

5.3.2 Steps Before Running FLUXDBG

Before submitting FLUXDBG, make sure that blank Flux tapes are available. The catalog must be checked for at least two or more blank tapes in the queue. To obtain a listing of the FLUX catalog and procedures for adding blank FLUX tapes to the catalog, refer to Section 6, which describes "FLUX Data Base Maintenance Procedures."

After the Flux catalog has been checked for blank tapes, determine if data is to be inserted into the Flux data base, if normal updating is required, or if both modes of operation are necessary. The update or normal mode of operation is used when all EDRs processed contain data for days later than the last date listed in the Flux catalog. Refer to the Flux catalog listing for the last day of data processed by FLUXDBG. Then check the PIODRP listings processed since the last FLUXDBG update, and determine the earliest date for which data were processed. If the data processed by PIODRP corresponds to a date earlier than the last date in the Flux catalog, then use the insert mode of operation for FLUXDBG. If the earliest data processed by PIODRP is later than or equal to the last date in the Flux catalog, then use the normal or update mode of operation for FLUXDBG processing.

5.3.3 Normal or Update Mode

The JCL for FLUXDBG is contained in SB#PR.LIB.CNTL, FLUXDBGF or FLUXDBGG, PIONEER-F or PIONEER-G, respectively.

Execute Fluxdbg class(?)
*, default class is F

Profile SB#PR, then stab in the following for submittal:

```
STAB useridFFF TIME(10,0) IOEST(30)
=:LIB(UJC) 70:71 50:51 (class e)  30:31 (class A)
=:LIB(FLUXDBGF)
// EXEC NTSO
ENDINPUT
```

The above JCL is for PIONEER-F. For PIONEER-G, the JCL is FLUXDBGG and the jobid is GGG.

5.3.4 Replace/Insert Mode

The replace/insert mode of operation for FLUXDBG is used when the earliest day processed by PIODRP falls before or is equal to the last day in the current Flux catalog listing. In this case, calculate the absolute file number, which is based on the base year of 1972, following these steps. (Also, refer to reference 1, p. I-132).

1) On a Julian calendar based on the base year of 1972, find the earliest day for which data is to be replaced/inserted (refer to Appendix E for Julian calendar). Note the associated base day. Use the following formula to determine the start absolute file number:

   Absolute File Number = (Base Day# -2) x 96 (+1)

   This will give a six digit number that is the NFAFN parameter required on the insert card.

2) The end absolute file number which is specified in the NLAFN parameter on the insert card, tells the program where to stop updating. Again, the latest Flux catalog listing needs to be referenced. Refer to Appendix D for a sample Flux catalog listing. Locate the Flux tape that contains the start absolute file number, where data are to be inserted. If the start absolute file number falls within the range of the last Flux tape listed in the catalog, then only one insert data card is required. The NLAFN parameter will be the end absolute file number on the last tape in the Flux catalog and the parameter QNOUPD=F will be set. FLUXDBG will insert at the time indicated on the NFAFN parameter and continue to update until the end of data on the PHA and RATE tapes.

3) When the start absolute file number lies within the range of a Flux tape, which is previous to the current last Flux tape, then two insert cards will be required. The first card tells the FLUXDBG program where to start replacing data and where to stop processing (which will be the end of that Flux tape where the data is to reside). The second card tells the FLUXDBG program to start processing on the next Flux tape and to continue updating to the end of data. Refer to the second example given below.

Specific examples for preparing the insert cards follows:

Table 1. Sample Data From the Flux Catalog

START AFN	YY/MM/DD/HR MN SEC	END AFN	YY/MM/DD/HR MN SEC	TAPE
376681	82/09/28 18 0 0	387673	83/01/21 06 0 0	E00593
387674	83/01/21 06 15 0	399058	83/05/19 20 15 0	E00590
399059	83/05/19 20 30 0	410749	83/09/18 15 0 0	E00586
410750	83/09/18 15 15 0	418958	83/12/13 03 15 0	E00566

To insert day 9/20/83, Julian day 263, and update to the end of data, compute the absolute file number and then prepare the insert cards shown below.

Absolute File Number = 4281(base day) (-2) x 96 (+1) = 410784

```
&INSERT NFAFN=410784,NLAFN=418958,QNOUPD=F, &END
```

This insert/replace card tells FLUXDBG where to insert data and to continue to the end of the data base. To insert day 05/21/83, Julian day 141, and update to the end of the current data base, compute the absolute file number and prepare the insert cards as shown.

Absolute File Number = 4159(base day) (-2) x 96 (+1) = 399073

```
&INSERT NFAFN=399073,NLAFN=410749,QNOUPD=T, &END
&INSERT NFAFN=410750,NLAFN=418958,QNOUPD=F, &END
```

The first insert/replace card tells FLUXDBG where to start inserting/replacing data and to stop at the end of the Flux tape on which the data resides. The second insert/replace card tells FLUXDBG where to start processing again and to continue to the end of the current data base.

4) After determining the proper insert/replace card setup, QED SB#PR.LIB.CNTL, member FINSERTF or FINSERTG, for PIONEER-F or PIONEER-G. Set the data cards up according to the examples in the previous steps with the appropriate parameters.

5) To submit FLUXDBG using insert/replace mode of operation:

```
STAB UseridFFF TIME(10,0) IOEST(30)
=:LIB(UJC) 70:71
=:LIB(FL#XDBGF)
=:LIB(FINSERTF)
// EXEC NTSO
ENDINPUT
```

Use the setup above for PIONEER-F. To submit PIONEER-G, use GGG for the jobid, FLUXDBGG for the JCL, and FINSERTG for the insert/replace data cards. These jobs are usually run CLASS=E for overnight processing, but may be run on the weekend or on a priority basis.

PIONEER-F and PIONEER-G FLUXDBG runs must not execute at the same time. Therefore, use the following when submitting both:

```
STAB UseridFFF TIME(10,0) IOEST(30
=:LIB(UJC) 70:71        50 51 class E
=:LIB(FL#XDBGF)
=:LIB(FINSERTF)
// EXEC NTSO
// EXEC RELEASE,PARM=GGG
ENDINPUT

STAB UseridGGG TIME(10,0) IOEST(30)
=:LIB(UJC) 80:81    60:61  class E Hold
=:LIB(FL#XDBGG)
=:LIB(FINSERTG)
// EXEC NTSO
ENDINPUT
```

6) When the FLUXDBG run completes, check for return codes of zeroes and for errors. Also, check the end date on the last Flux tape in the Flux catalog listing. This date should match the last date on the PHA and RATE tape catalog listing produced by PIODRP.

5.3.5 Problems with FLUXDBG

Three possible problems and their solutions are described here.

Problem: Insufficient blank tapes
Solution: Add blank Flux tapes to the queue.

Problem: SF22 ABEND, operator cancelled.
Solution: Increase the IOEST time on the JOBCARD.

Problem: Job cancelled because data sets needed are already in use.
Solution: Possibly two FLUXDBGs were trying to execute at the same time or another job may be using the catalog. Resubmit the job. Use RELEASE procedure, if necessary.

Also, refer to reference 1, pp. I–133 through I–136, for other FLUXDBG program error messages.

SECTION 6 - FLUX DATA BASE MAINTENANCE

6.1 DESCRIPTION OF PIONEER FLUX CATALOG

The PIONEER Flux catalog is on disk in the data set SB#PR.FLUXCAT.DATA. This data set contains a listing of all the source tapes in the Flux data base catalog. There are several sources in the Flux catalog for PIONEER-F and PIONEER-G, which contain listings of all the FLUX tapes. The following sources are maintained on a routine basis:

PIONEER-F

EDR source - contains the standard 1600-bpi Flux data base tapes generated from the PHA and RATE tapes by FLUX DBG

6250 source - contains the same information as the 1600-bpi Flux tapes, but packed onto 6250-bpi tapes

PENC source - the 6250-bpi Flux tapes, which contain the post Jupiter encounter data, corrected by the BIT2ON program.

PIONEER-G

NEDR source - same as PIONEER-F EDR source.

6250-bpi source - same as PIONEER-F 6250-bpi source.

6.2 LISTING THE PIONEER FLUX CATALOG

To obtain a listing of the PIONEER Flux catalog, use the JCL, SB#PR.LIB.CNTL(FCATLST). This listing will provide a list of all the Flux tapes and the data which they contain. See 4.2 pg. 9.

6.3 ADDING BLANK TAPES TO THE FLUX CATALOG

Tape volume numbers must be supplied in the Flux catalog for the FLUXDBG program to execute normally. Tape volume numbers should be added periodically as needed for PIONEER-F and PIONEER-G. The FLXMNT program is used for this procedure. The standard PIONEER 1600-bpi Flux tape volume numbers are:

PIONEER-F Flux tapes: ~~E00501~~ Penc01 through ~~E00550~~ Penc16

PIONEER-G Flux tapes: ~~E00551~~ Z480 through ~~E00600~~ Z828

Use TLSUPDTE to locate the current slot numbers provided in the Building 1 tape library. The older Flux tapes that are not being used routinely are stored in the south wing hallway cabinets in Building 2.

To add Flux tape volume numbers to the Flux catalog, do the following:

1) Obtain a current Flux catalog listing by using the JCL contained in SB#PR.LIB.CNTL(FCATLST).

2) Review the Flux catalog listing and through the process of elimination, determine the Flux tapes that are not currently in the Flux data base or blank tape queue. Use the specified tape volume number range shown above.

3) After determining the tape numbers that have to be added, refer to the JCL SB#PR.LIB.CNTL(FCATADDF) for PIONEER-F, or SB#PR.LIB.CNTL(FCATADDG) for PIONEER-G.

4) Edit the DTAPES parameter on the &CATALOG name list card with the tape numbers to be added. The maximum number of tapes per run is 20.

5) The job should complete successfully with return codes of zeroes. Check the printout, which will list the catalog before and after the tapes were added.

6) If a tape is already in the catalog, the tape will be rejected and the job will continue to run.

6.4 BACKING-UP THE FLUX CATALOG

The Flux catalog should be backed-up after FLUXDBG is run and after the 6250-bpi and the PENC tapes are updated. The JCL member, FCATBACK, is contained in SB#PR.LIB.CNTL and can be submitted without editing.

6.5 RESTORING THE FLUX CATALOG

In case of an unrecoverable error during a FLUXDBG run, the Flux catalog can be restored as long as FCATBACK was run after the last update. The JCL, FCATRELO, is contained in SB#PR.LIB.CNTL. This setup requires no editing.

6.6 BACKING-UP THE 1600-bpi FLUX TAPES

Refer to the PIONEER Production Maintenance Book and locate the section on 1600-bpi Flux tape backups.

The Flux tape backup volume numbers are:

PenB01 - PenB16

PIONEER-F E03001 through E03050
PIONEER-G E03051 through E03100 see SB#PR.lib.data (Flux bkup)

ZBK0001 - ZBK0002

Use the last tape assigned in the PIONEER Production Maintenance log book, Flux tape section. The last tape will be used over again until an original 1600-bpi Flux tape is full.

The JCL, contained in SB#PR.LIB.CNTL is FTPCPY for PIONEER-F, and FTPCYG for PIONEER-G. The IN= parameter is the 1600-bpi Flux tape volume number to be copied and the OUT= parameter is the output 1600-bpi backup tape number.

Execute 'SB#PR.LIB.CLIST(FTPCPY)

SECTION 7 – MAINTAINING THE 6250–bpi FLUX TAPES

7.1 DESCRIPTION OF THE 6250–bpi FLUX TAPES

The 6250–bpi Flux tapes for PIONEER–F and PIONEER–G need to be updated each time a 1600–bpi Flux tape is copied and updated by FLUXDBG. The Flux catalog contains a list of these Flux tapes in the 6250–bpi source for each satellite along with the corresponding data span. These 6250–bpi Flux tapes must be updated for the PENC 6250–bpi Flux tapes to be created.

7.2 UPDATING THE 6250–bpi FLUX TAPE

Refer to Appendix B Flux tape section. Compare the last group of 1600–bpi Flux tapes to the last FLUXDBG tape listing. Note that the last tape will have changed. If the last Flus tape was full, the last tape will have changed and a new tape added. In this case, a new 1600–bpi Flux tape will have been used.

The JCL, contained in SB#PR.LIB.CNTL is F4TO1F for PIONEER–F and F4TO1G for PIONEER–G. Copy the last group of tapes (a minimum of one and a maximum of four) onto the indicated 6250–bpi Flux tape. Refer to Appendix B for examples.

The 6250–bpi Flux tape volume numbers are:

PIONEER–F Z00480 through Z00495
PIONEER–G Z00811 through Z00828

These current tapes are stored in the Building 1 tape library.

7.3 UPDATING THE 6250–bpi SOURCE

After successfully copying the 1600–bpi Flux tapes to the current 6250–bpi Flux tape, the 6250–bpi source in the Flux catalog needs to be updated to reflect the new data span. To do this, refer to the last FLUXDBG printout and find the end absolute file number. Then, use the CLIST, UPD6250, input the correct satellite ID (F or G), and input the last absolute file number. This CLIST will submit a Flux catalog listing. The last absolute file number should match the last absolute file number in the EDR or NEDR source, PIONEER–F or PIONEER–G.

7.4 ADDING A NEW 6250–bpi TAPE VOLUME NUMBER TO THE 6250–bpi SOURCE

When a 6250–bpi Flux tape contains four 1600–bpi Flux tapes, the 6250–bpi tape is considered complete. A new tape must then be created and its volume number added to the 6250–bpi source. Use the following procedure to do this:

1) Use the CLIST UPD6250 to update the source with the end absolute file number on the completed 6250–bpi Flux tape.

2) Using the CLIST, ADD6250, enter the satellite ID, F or G. This CLIST will add the next consecutive tape number to the source as well as enter the start absolute file number. Do not break this CLIST in the middle of execution! If there is a problem, see the cognizant programmer.

3) After the new 6250-bpi Flux tape has been added, the CLIST, UPD6250 must be run again to enter the end absolute file number on the new 6250-bpi tape. Reference the last FLUXDBG printout for this information.

SECTION 8 – CREATING AND MAINTAINING THE PIONEER–F PENC 6250–bpi FLUX TAPES

8.1 DESCRIPTION OF THE PENC 6250–bpi FLUX TAPES

The PENC 6250–bpi Flux tapes contain the corrected rate data, with the rate values falling within the general trend of the data eliminating significant errors in the Fluxes. (These errors may have been present due to a problem with bits in the PIONEER–F detector, which intermittently fails to register.) This problem occurs because one or more bits in the PIONEER–F rate accumulator intermittently is not set.

There is a six–step procedure necessary to update the PENC Flux tape. These programs and procedures include: BIT2ON, COPYVBS, PFRSUM, PATCH, PATRICK, and the UPDPENC CLIST to update the PENC source.

8.2 BIT2ON PROGRAM

The BIT2ON program reprocesses the PIODRP RATE tapes and generates "BIT2ON corrected" RATE tapes. Refer to reference 1, p. I–115.

The initial RATE tapes are read by BIT2ON. There are two options to the approach of reprocessing: TIMESKIP and TIMECOPY. Refer to reference 1, pp. I–118 through I–120, for more details.

8.2.1 TIMESKIP Option

The TIMESKIP option allows the user to skip forward to a requested time on the input tape and to begin reprocessing from this point directly onto the output tape. The TIMESKIP option is used when a new corrected rate tape is being created, normally at the same time a new PENC Flux tape is being created.

8.2.2 TIMECOPY Option

The TIMECOPY option requires the user to first copy part of a previously reprocessed tape to the output tape and then skip to the desired time on the input tape and start processing to the output tape following the copied data. The TIMECOPY option is routinely used on a monthly basis.

8.2.3 JCL for BIT2ON

The JCL, BIT2ON, is contained in SB#PR.LIB.CNTL. A listing of the JCL follows:

```
//GO EXEC PGM=BIT2ON,REGION=160K
//STEPLIB  DD  DSN=SB#HL.LIB.LOAD,DISP=SHR
//GO.FT06F001 DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=7265)
//GO.FT20F001 DD DUMMY
//GO.FT30F001 DD DUMMY
//GO.FT08F001 DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=7265)
```

```
//GO.FT09F001 DD DSN=PIORAT,UNIT=(6250,,DEFER),DISP=SHR,
// VOL=SER=DUMRAT,DCB=DEN=3
//GO.FT10F001 DD DSN=PIORAT,UNIT=(6250,,DEFER),DISP=SHR,
// DCB=(RECFM=VBS,LRECL=1740,BLKSIZE=8704,BUFNO=1,DEN=3),
// VOL=SER=DUMOUT,LABEL=(,SL,,OUT)
//GO.SYSUDUMP DD SYSOUT=A
//*DATACARD  DTYPE(1-8),ID(9-10),DTAPE(13-20),DTPOUT(21-28),
//*          DTPCPY(29-36),HTIME:  START: YR(37-38),MN(39-40),DAY(41-42)
//*                                END:   YR(49-50),MN(51-52),DAY(53-54)
//* DTYPE=TIMESKIP    DTAPE IS MOVED FORWARD TO THE REQUESTED
//*                   START DAY AND PROCESSING IS STARTED AT
//*                   THE BEGINNING OF DTPCPY.
//* DTYPE=TIMECOPY    DTPOUT IS COPIED TO DTPCPY UP TO THE
//*                   REQUESTED START TIME, THEN DTAPE IS MOVED
//*                   TO THE REQUESTED TIME AND PROCESSING IS STARTED
//*                   ONTO DTPCPY, UP TO THE REQUESTED END TIME.
//*DATACARD
//*DTYPE ID DTAPE   DTPOUT  DTPCPY  YYMMDD000000YYMMDD000000
//GO.FT05F001 DD *
 &EXCEPS NEXCS=0,IEXCS=100*999999,NEXCU=0,IEXCU=100*999999,NZERO=0,
  IZERO=100*999999,&END
 &EXCEPS NEXCS=9,IEXCS(1)=734,IEXCS(2)=8421376,IEXCS(3)=16482304,
  IEXCS(4)=10208,IEXCS(5)=12256,IEXCS(6)=14254080,IEXCS(7)=14385152,
  IEXCS(8)=778,IEXCS(9)=2296,NEXCU=9,IEXCU(1)=734,IEXCU(2)=778,
  IEXCU(3)=8421376,IEXCU(4)=16482304,IEXCU(5)=10208,IEXCU(6)=12256,
  IEXCU(7)=14254080,IEXCU(8)=14385152,IEXCU(9)=2296,NZERO=2,
  IZERO(1)=14516224,IZERO(2)=14647296, &END
 &TRENDS LASTUS=128*0,LASTSS=128*0, &END
 &TRENDS LASTUS(9,1)=0174,LASTUS(4,2)=0186,LASTUS(5,2)=369,
 LASTUS(9,2)=0281,LASTUS(9,3)=0281,LASTUS(14,3)=514,
 LASTUS(14,4)=0192,LASTUS(14,6)=642,LASTUS(14,7)=102,
 LASTUS(14,8)=634,LASTUS(9,4)=0399,&END
TIMECOPY F  E00327  PFCR15  PFCR16  840131000000000000000000
// EXEC RELEASE,PARM=RBK
// EXEC NOTIFYTS
```

The TIMECOPY input data card must be changed. This card contains the TIMECOPY keyword, the satellite ID, three tape volume numbers, and a start date. The first tape is changed to reflect the last RATE tape created by PIODRP. The second tape is the old corrected RATE tape created the last time the BIT2ON program was run. The corrected RATE tape is used over and over until full, after which it is saved and replaced with a blank tape. The third tape is an output scratch tape that will be copied back onto the original corrected RATE tape in the next step of the procedure. The date entered is the actual start date for the corrections to begin. This date should be the day the insert started in FLUXDBG or the last date processed through the previous BIT2ON.

ABENDs and error messages can be located in reference 1, p. I-121.

8.3 RECREATING THE CORRECTED RATE TAPE

The next job to be run is BCPYRAT contained in SB#PR.LIB.CNTL. This job copies the updated corrected RATE tape (the 'scratch' tape) back onto the original corrected RATE tape that was used as the second input tape on the TIMECOPY card in BIT2ON. The JCL follows:

```
//COPY  DD  DSN=PIORAT,UNIT=6250,VOL=SER=&OUTVOL. ,LABEL=( , , ,OUT),
//  DISP=(SHR,KEEP),DCB=(RECFM=VBS,LRECL=1740,BLKSIZE=8704,
//  DEN=3,BUFNO=2)
//SYSUDUMP  DD  SYSOUT=A
//  PEND
// EXEC COPYVBS,INVOL=PFCR16,OUTVOL=PFCR15
// EXEC RELEASE,PARM=FSM
// EXEC NOTIFYTS
```

Changes must be made to the INVOL and the OUTVOL parameters.

INVOL = output scratch tape volume number from BIT2ON
OUTVOL = input corrected RATE tape from BIT2ON

8.4 PFRSUM PROGRAM (RATE SUMMARY)

The PFRSUM program produces 15-minute average rate summary intervals from the corrected RATE tape. Refer to reference 1, pp. I-149 to I-152. The JCL, BIT2RTSM, in SB#PR.LIB.CNTL follows:

```
//*****************************************************************************

//LINKGO EXEC OLINKGOH,REGION.GO=200K
//LINK.SYSLIB DD DSN=SB#PR.ZB2NL.OPIOFRAT.LOAD,DISP=SHR
//LINK.SYSLIN  DD  *
 INCLUDE SYSLIB(PFRSUM)
 ENTRY PFRSUM
//GO.FT06F001 DD SYSOUT=A,
// DCB=(RECFM=VBA,LRECL=137,BLKSIZE=7265,BUFNO=1)
//GO.FT09F001 DD DSN=PIORAT,UNIT=(6250,,DEFER),
// LABEL=(,SL,,IN),DCB=DEN=3,VOL=SER=DUMRAT,DISP=SHR
//GO.FT10F001 DD DSN=PIOFRSUM,UNIT=(6250,,DEFER),
// DISP=(MOD,KEEP,KEEP),VOL=SER=DUMMOD,
// DCB=(RECFM=FB,LRECL=1340,BLKSIZE=32160,BUFNO=1,DEN=4)
//GO.FT16F001 DD DSN=PIOFRSUM,UNIT=AFF=FT10F001,
// DISP=(NEW,KEEP,KEEP),VOL=SER=DUMNEW,
// DCB=(RECFM=FB,LRECL=1340,BLKSIZE=32160,BUFNO=1,DEN=4)
//GO.FT20F001 DD DSN=SB#PR.PFDRSCTP.DATA,DISP=SHR
//GO.FT21F001 DD DSN=SB#PR.PFDRSCT1.DATA,DISP=SHR
//GO.FT22F001 DD DSN=SB#PR.PFDRSCT2.DATA,DISP=SHR
//GO.FT23F001 DD DSN=SB#PR.PFDRSCT3.DATA,DISP=SHR
//GO.FT24F001 DD DSN=SB#PR.PFDRSCT4.DATA,DISP=SHR
//GO.FT32F001 DD DSN=SB#PR.DPIOFRSP.DATA,DISP=OLD,
// DCB=(RECFM=VS,LRECL=1344,BLKSIZE=1348)
//GO.SYSUDUMP DD SYSOUT=A
//GO.DATA5 DD *
 &PERIOD DRTAPE='PFCR15',QSPEC=T,NINT=200000,&END
 &INIT DTAPES='PFSM06',QTRCHK=T,INTHR=0,INTMIN=15,HID='F',&END
// EXEC RELEASE,PARM=PTH
// EXEC NTSO

//*****************************************************************************
```

The &PERIOD and &INIT cards need to be changed.

&PERIOD card: DRTAPE is the corrected RATE tape containing the data to be summarized. This tape was the output tape from the BCPYRAT job. The tape number must be enclosed in single quotes. The rest of the parameters stay the same for this monthly procedure. Refer to reference 1, pp. I-149 through I-151, for changes to these parameters.

&INIT card: The DTAPES parameter refers to the output RATE summary tape. This tape is used over and over until full, then saved. The tape volume number must be enclosed in single quotes. The rest of the parameters remain the same for this procedure. Refer to reference 1, pp. I-157 through I-152, for more details.

8.5 PATCH PROGRAM

The PATCH program reads the RATE summary tape updated by BIT2RTSM and the current 6250-bpi Flux tape. PATCH then produces a 6250-bpi tape containing the corrected RATE data and PHA data. This tape is the updated PENC 6250-bpi Flux tape. The JCL, B2FLXPTH, contained in SB#PR.LIB.CNTL, is listed as follows:

```
//*********************************************************************
//*PATCH-PF PENCTAPE
//PATCH EXEC PGM=PATCH,REGION=200K
//STEPLIB DD DSN=SB#PR.PATCH.LOAD,DISP=SHR
//FT06F001 DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=7265)
//* SERIAL NUMBER IN THE FOLLOWING DD CARD IS RATE SUMMARY TAPE
//FT10F001  DD  UNIT=(6250,,DEFER),VOL=SER=(PFSM06),
//  DCB=(BUFNO=1,OPTCD=B),DSN=PIOFRSUM,DISP=SHR
//* SERIAL NUMBER IN THE FOLLOWING DD IS '6250' SOURCE DBG TAPE
//* SUBSEQUENT STEPS USE Z491
//FT20F001  DD  UNIT=(6250,,DEFER),VOL=SER=Z491,DISP=SHR,
//  DCB=BUFNO=1,DSN=PIOFLUX
//* SERIAL NUMBER IN THE FOLLOWING DD IS 'PENC' SOURCE TAPE
//* ... PENC10
//FT30F001  DD  UNIT=(6250,,DEFER),VOL=SER=PENC10,DISP=(SHR,KEEP),
```

```
//  DSN=PIOFLUX,DCB=(RECFM=VB,LRECL=32008,BLKSIZE=32012,BUFNO=1),
//  LABEL=(,,,OUT)
//* TIMES ARE TO BE COPIED FROM '6250' SOURCE TAPE TIMES
//FT05F001 DD *
 &LIMITS STIME=84,03,04,19,00,ETIME=84,04,02,17,15,R2AMAX=0.5,
         R2BMAX=0.05,R3AMAX=0.1, &END
// EXEC RELEASE,PARM=CFX
// EXEC NTSO

**********************************************************************
```

Several changes need to be made:

FT10 DD card: This card should reference the current RATE summary tape created by the previous BIT2RTSM job.

FT20 DD card: This card should reference the current 6250-bpi Flux data base tape.

FT30 DD card: This card should reference the current PENC Flux data base tape.

&LIMITS card: This card provides the STIME and ETIME parameters. The STIME parameter is the start time of the current PENC 6250-bpi Flux tape. This card is changed only when a new PENC 6250-bpi Flux tape has been added. The ETIME parameter is changed to the last date processed by FLUXDBG each time the PENC 6250-bpi Flux tape is to be updated. The 6250-bpi Flux tape and the PENC Flux tape numbers will change only when the current tapes are filled and new tapes are to be added.

8.6 BACKING UP THE PENC TAPE

After each update to the PENC tape, a backup is created. The JCL, B2FLXCPY, contained in SB#PR.LIB.CNTL, follows:

```
//DUP9   PROC
// EXEC PGM=PATRICK,PARM='9TN,001,001',REGION=150K
//IN1 DD UNIT=6250,DSN=PIOFLUX,VOL=SER=&IN,LABEL=(,SL,,IN),
// DCB=(RECFM=VB,LRECL=32008,BLKSIZE=32012,DEN=4,EROPT=ABE,
// BUFNO=2),DISP=SHR
```

```
//OUT1 DD UNIT=6250,DSN=PIOFLUX,VOL=SER=&OUT,LABEL=(,SL,,OUT),
// DCB=(RECFM=VB,LRECL=32008,BLKSIZE=32012,DEN=4,BUFNO=2),DISP=SHR
//OUT2 DD SYSOUT=A,DCB=BLKSIZE=3564
// PEND
// EXEC DUP9,IN=PENC10,OUT=PENB10
// EXEC NOTIFYTS
```

The IN= parameter indicates the last corrected PENC Flux tape. The OUT= parameter indicates the proper PENB backup volume number. The current PENC volume numbers and their backups follow:

PENC Flux tapes:	PENC01 through PENC09
Backup tapes:	PENB01 through PENB09

8.7 UPDATING THE PENC SOURCE

After the PENC tape has been updated, the source segment of the Flux catalog needs to be updated to reflect the current status. A CLIST, UPDPENC, is used for this. The CLIST will prompt for the end absolute file number, the same as UPD6250 CLIST. Refer to the last FLUXDBG run or the current Flux catalog listing.

SECTION 9 – PENC SOURCE MAINTENANCE

Whenever a 6250–bpi Flux tape is filled with four full 1600–bpi Flux tapes, a new PENC tape volume number needs to be added to the PENC source. The CLIST, UPDPENC, must be run to enter the last absolute file number on the last PENC tape, which is obtained from the last FLUXDBG listing. Then the CLIST, ADDPENC, is run to add the next sequential PENC tape. The start absolute file number will be calculated from the previous end absolute file number. ADDPENC invokes the CLIST UPDPENC and prompts for the end absolute file number to appear in the source for the last PENC tape just added. (Note: Do not break this CLIST in the middle of execution!)

SECTION 10 – STANDARD PRODUCTION ANALYSIS (MONTHLY BASIS)

10.1 FIVE–DAY MOVING AVERAGE (PIONEER–F ONLY)

A CLIST, LOADR2A, is used to create a daily average FLUXPLOT disk data set containing rate data for a specified period. See Appendix C for example LOADR2A execution. This data set, SB#PR.R2AF.DATA, is created by LOADR2A and is used by the CLIST, MAVPLOT, which creates the five–day moving average listing requested by Dr. McDonald on a monthly basis.

Execute the CLIST, LOADR2A, which prompts for the satellite ID, the start date, and the end date. The start date is always the first day of the current year. The end date is the end date in the current Flux catalog. Dr. McDonald receives the output listing from this job. The job ID is LDF.

After the LDF job completes normally, the CLIST, MAVPLOT, is run to produce a five–day moving average listing for Dr. McDonald. Refer to Appendix C for proper MAVPLOT execution.

10.2 26–DAY AVERAGE RATE LISTING AND MATRICES (PIONEER–F AND PIONEER–G)

A CLIST, LIST26DY is used to submit the 26–day average rate listings and matrices requested by Dr. McDonald on a monthly basis for PIONEER–F and PIONEER–G. This CLIST will prompt for the satellite ID, the start date, and the end date. The start day is the first day of the current year. The end date is the end date of the current Flux data base. LIST26DY will submit two jobs. The job IDs for PIONEER–F are FXF and MXF; job IDs for PIONEER–G are FXG and MXG.

When the Flux data base is complete at the end of each year, LIST26DY is run for the complete year. Two copies should be made. One is given to Dr. McDonald; the other is filed in the Cosmic Ray data room. Refer to Appendix C for example LIST26DY execution.

10.3 SUMMARY OF THE MONTHLY STANDARD ANALYSIS RUNS

LOADR2A, PIONEER–F only, creates a disk data set and a listing. The listing is given to Dr. McDonald. LDF.

MAVPLOT, PIONEER–F only, produces a five–day moving average listing. The listing is given to Dr. McDonald.

LIST26DY, PIONEER–F and PIONEER–G, rate listings and matrices. The listings are given to Dr. McDonald. FXF, FXG, MXF, MXG.

PFLOW, PGLOW Pioneer F and G. Produces plots of low energy particles requested by Dr. McDonald.

$PIOLOW, $PILLOW, Pioneer F and G. Produces disk data sets for above plots and listings

SECTION 11 – STANDARD ANALYSIS PLOTS (TRI–MONTHLY BASIS)

11.1 DESCRIPTION OF THE STANDARD ANALYSIS PLOTS

- The standard analysis plots are generated for Dr. McDonald for every three months of completed data in the Flux data base for PIONEER–F and PIONEER–G.
- The program FLUXPLOT is used to generate the data sets that contain the data to be used as input into the CLIST, MAVPLOT.
- Knowledge of the CLIST, MAVPLOT is necessary to create the plots as requested.

11.2 PROCEDURE FOR TRI–MONTHLY ANALYSIS PLOTS

- The members that contain the FLUXPLOT data cards are located in SB#PR.LIB.CNTL. The members are ASPECF1, ASPECF2 for PIONEER–F, and ASPECG1, ASPECG2 for PIONEER–G.
- To create the data sets necessary for input into the CLIST, MAVPLOT use the CLIST, PLOTQUAF for PIONEER–F and PLOTQUAG for PIONEER–G. See Appendix C for execution examples.
- The CLIST, PLOTQUAF will submit two FLUXPLOT jobs and create the data sets SB#PR.ASPECF1.DATA and SB#PR.ASPECF2.DATA.
- Use the CLIST, MAVPLOT and SB#PR.ASPECF1.DATA as the input data set. Plot frame one as semi–log using a vertical scale of 10^{-5} to 10^{+3}. The height is 16", the length is 9.3". Plot frame 2 as semi–log using a vertical scale of 10^{-3} to 10^{0}. The height is 12" and the length 9.3".
- Use the CLIST, MAVPLOT and SB#PR.ASPECF2.DATA as the input data set. Plot this frame as linear using a vertical scale of .08 – .24. The height is 16" and the length is 9.3". Use MAVPLOT again and plot on the same scale but on a five–day moving average.
- The CLIST, PLOTQUAG will submit two FLUXPLOT jobs and create the data sets SB#PR.ASPECG1.DATA and SB#PR.ASPECG2.DATA.
- Use the CLIST, MAVPLOT and SB#PR.ASPECG1.DATA as the input data set. The frame is semi–log with a vertical scale of 10^{-5} – 10^{3}. The height is 16" and the length is 9.3".
- Use the CLIST, MAVPLOT and SB#PR.ASPECG2.DATA as the input data set. The frame is semi–log with a vertical scale of 10^{-3} to 10^{0}. The height is 12" and the length is 9.3".

SECTION 12 - YEARLY STANDARD ANALYSIS

12.1 DAILY AVERAGE RATE PLOTS

12.1.1 PIONEER-F

The CLIST, PLOTPIOF is used to produce a FR80 plot tape containing the PIONEER-F daily average rates. This CLIST prompts for the start and end dates, and a PIONEER plot tape. The start and end dates should be for an entire year. See Appendix C for example PLOTPIOF run. The PIONEER plot tape can be PIO01 through PIO15. When the job completes with return codes of zeroes, the plot tape is sent to the FR80 in Building 23 with a request for hard copy. When the hard copy is received, it is filed in the appropriate binders in the Cosmic Ray data room. See Appendix H for a sample micrographics job card.

12.1.2 PIONEER-G

The CLIST, PLOTPIOG, is used to produce a FR80 plot tape containing PIONEER-G daily average rate plots and six-hour average electron and proton flux plots. This CLIST prompts for start and end dates, and a PIONEER plot volume tape number. When the jobs are completed, the plot tape is sent to the FR80 in Building 23 for hard copy. The hard copy is filed in the Cosmic Ray data room. See Appendix C for example PLOTP10G run, and Appendix H for a sample micrographics job card.

12.2 26-DAY AVERAGE RATE LISTINGS AND MATRICES (PIONEER-F AND PIONEER-G)

LIST26DY, a CLIST, is executed for the entire year. Two hard copies are to be made, one for Dr. McDonald and the other for filing in the Cosmic Ray data room. The 26-day rate summaries and matrices are run for both PIONEER-F and PIONEER-G. See Section 10 for more details.

12.3 NATIONAL SPACE SCIENCE DATA CENTER (NSSDC) FLUX TAPES

The NSSDC receives a continuous Flux tape for each year of data for PIONEER-F and PIONEER-G. Each tape contains six-hour average Flux data for the entire data base. The new updated Flux tapes are given to NSSDC to replace their previous copies.

To provide the NSSDC with this data, the following procedure is used.

1) Create a Flux tape, using FLUXPLOT, which contains an entire year's worth of data. The FLUXPLOT data set to be edited is SDCTPF or SDCTPG (PIONEER-F or PIONEER-G) contained in SB#PR.LIB.CNTL. The only changes necessary are the plot tape volume number and the start and end time. See Appendix F for proper SI card structure.

2) After editing the SDCTPF or SDCTPG data set, use a STAB to submit the job using ANWPCDUM as the JCL. Refer to the following example:

```
//STAB USERIDSDT TIME(2,0) IOEST(15)
=:LIB(UJC) 10:11
=:LIB(ANWPCDUM)
=:LIB(SDCTPF)
// EXEC NTSO
ENDINPUT
```

Execute 'SB#PR.LIB.CLIST(NSSDCF)' (NSSDCG)

This JCL will submit the PIONEER-F FLUXPLOT job. To submit PIONEER-G, change SDCTPF to SDCTPG.

3) After the FLUXPLOT job completes and the Flux tape has been created, merge the new data with the previous year's tape and create a new updated Flux tape. The JCL, SMRGPIOF or SMRGPIOG (PIONEER-F or PIONEER-G), is used for this procedure. The following changes need to be made before the job is submitted.

   - The IN1 DD card should contain two tapes. The first tape is last year's Flux tape and the second tape is the Flux tape created in the previous step.
   - The OUT1 DD card should contain an output tape number. This tape should be labeled NL. This is the merged tape needed by the NSSDC.

4) After the merged Flux tape has been created, make a duplicate copy that is to be stored in the Cosmic Ray data room. The JCL, contained in SB#PR.LIB.CNTL(SCPYDCT), is used. The changes are as follows:

   SCPYDCG

   - The IN1 DD card contains the input tape volume number to be copied.
   - The OUT1 DD card contains the output tape volume number. This is a blank NL labeled taped.

5) TAPESCAN the Flux tape to ensure that the data on the tape is complete. The data should be continuous from the beginning of the Flux data base. File the TAPESCAN in the Cosmic Ray data room.

6) Deliver the original tape to Ralph Post, NSSDC, Building 26. The tapes should normally be delivered by April of each year. Rm 117

Bldg 28 Rm N197

SECTION 13 – TRAJECTORY TAPE PROCESSING

13.1 DESCRIPTION OF THE TRAJECTORY PROCEDURE

The trajectory tapes are received from Ames Research Center, Moffett Field, CA. Trajectory tapes are processed for PIONEER–F and PIONEER–G. These tapes are received once or twice a year. The tapes are processed through the trajectory data base generator program and then listed. The listings are generated and filed in the Cosmic Ray data room and one copy is given to Dr. McDonald. The tapes are then sent to tape storage.

13.2 TRAJECTORY DATA BASE GENERATOR AND LIST PROGRAMS

The trajectory tapes are processed through the TRAJ program. TRAJ reads files 1 and 3 from the trajectory data tape and writes to an output file on the given tape, either HGD035, PIONEER–F, or HGD036, PIONEER–G. The next sequential file number to be used for the TRAJ output tape file number is determined from the Pioneer Production Maintenance log book. Refer to reference 1, pp. H–45 and H–46, for examples.

13.2.1 Program Submission

The trajectory data base generator and the list programs can be submitted by using the CLIST, TRAJECT. See Appendix C for sample TRAJECT execution. Simply provide the responses to the CLIST, such as the input tape volume number and the output tape (HGD035 or HGD036) file number. The trajectory tape list program can be submitted solely; the CLIST will request a start file number and an end file number. The tape numbers are set in the CLIST when the satellite ID is input. These tape numbers need to be changed in the CLIST, TRAJECT, if the current tape volume numbers are changed.

13.2.2 Source Locations

The source for the trajectory data base generator is contained in SB#PR.LIB.CNTL(TRAJSOR). The JCL for submitting the trajectory data base generator program is contained in SB#PR.LIB.CNTL(TRAJJCL). These members should not be changed, because they are set up to be used by the CLIST, TRAJECT.

The source for the trajectory tape list program is contained in SB#PR.LIB.CNTL(TRAJLSTS). The JCL for submitting the trajectory tape list program is contained in SB#PR.LIB.CNTL (TRAJLST). These members should not be edited since they are used by the CLIST, TRAJECT.

If there is a problem with a trajectory tape, refer to Section 2.3, "Problems With EDR Tapes" for persons to contact and address.

See SB#PR.LIB.CNTL(TRAJCT)

SECTION 14 – SPECIAL TAPE LIST PROGRAMS

14.1 EDR TAPE LIST (EDRLIST)

JCL exists to execute the EDR tape list program, EDRLIST. The JCL is contained in SB#PR.LIB.CNTL(UEDRLST). Refer to reference 1, pp. I–36 through I–39, for data card formats.

14.2 PHA TAPE LIST PROGRAM (PRNPHA)

A JCL exists that executes the PHA tape list program, PRNPHA. The JCL is contained in SB#PR.LIB.CNTL(UPHALST). Refer to reference 1, pp. I–48 through I–55, for data card formats.

14.3 RATE TAPE LIST PROGRAM (PFRTPL)

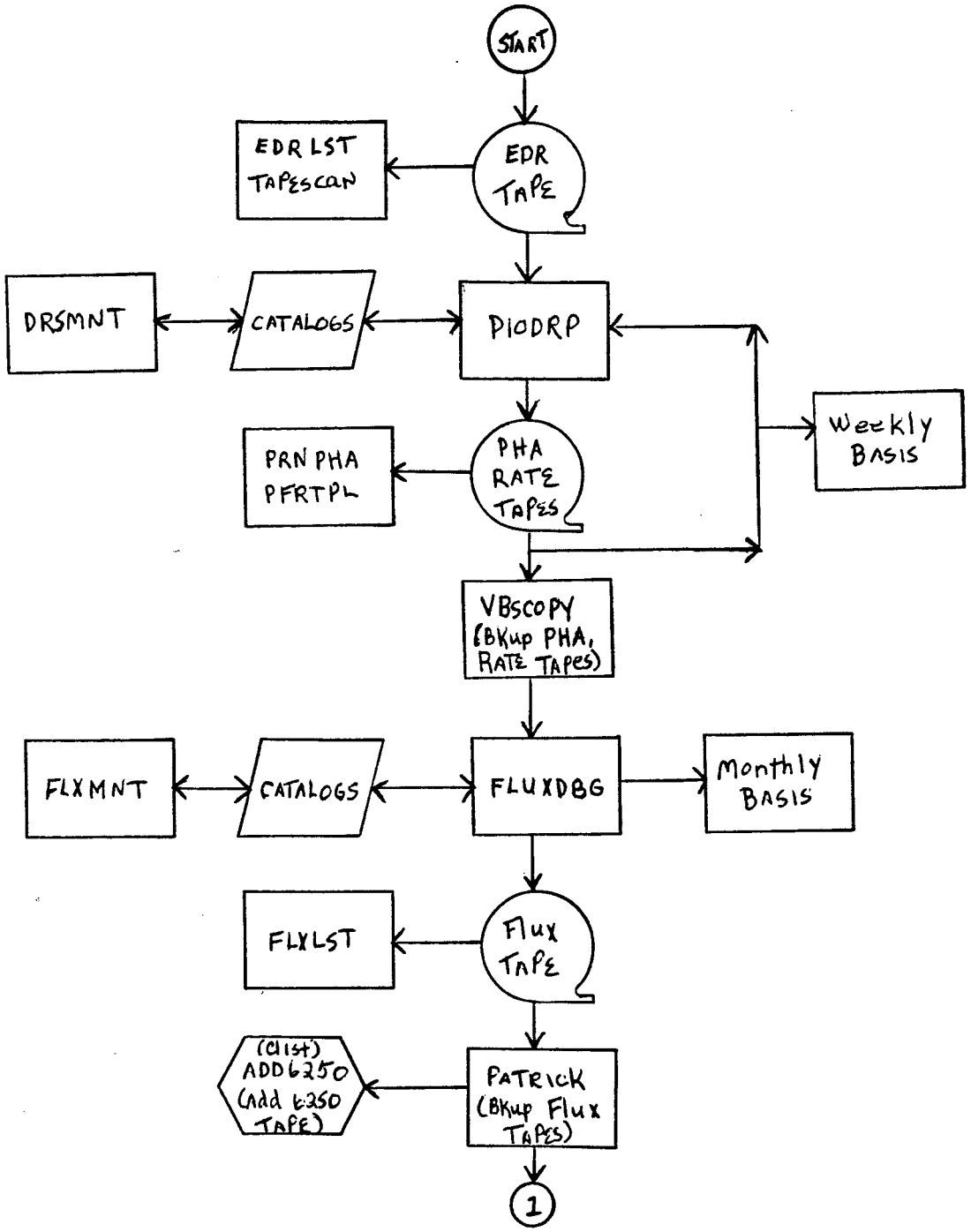
A JCL exists that executes the program, PFRTPL. The JCL is contained in SB#PR.LIB.CNTL(URATLST). Refer to reference 1, pp. I–40 through I–41, for data card formats.

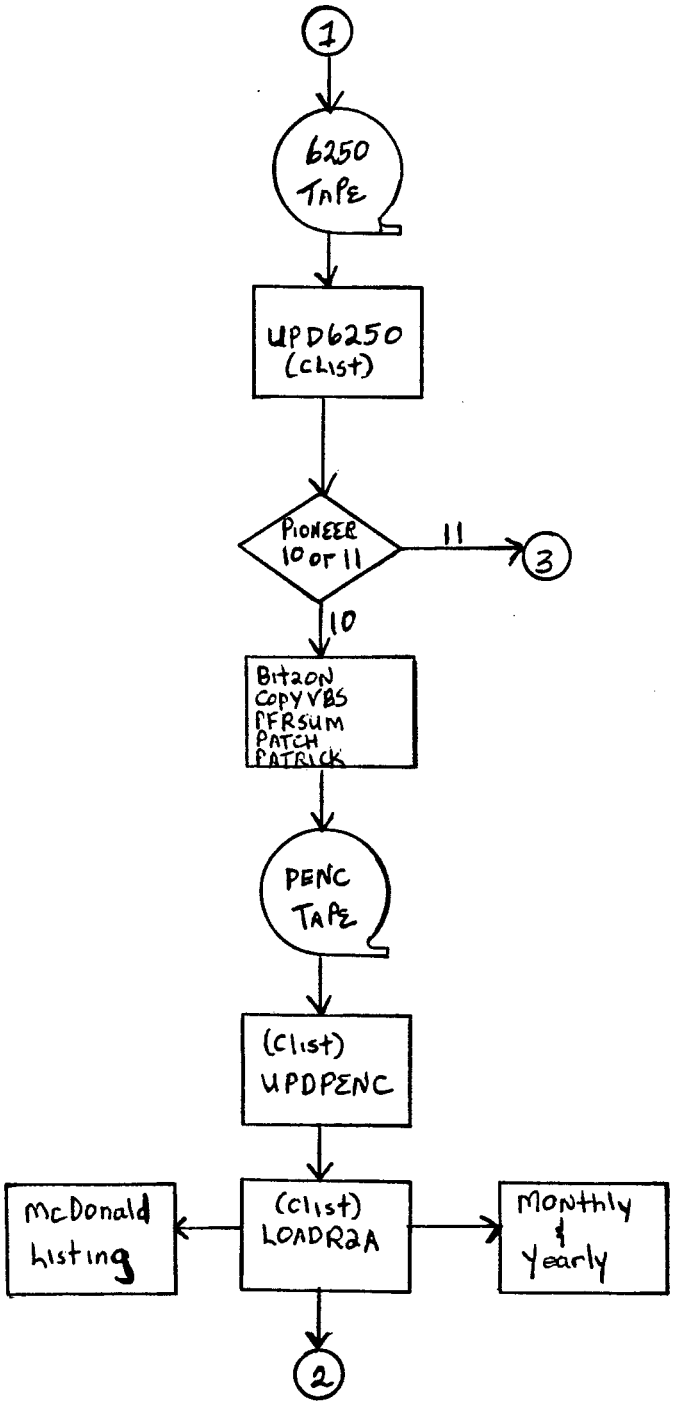
14.4 FLUX TAPE LIST PROGRAM (FLXLST)

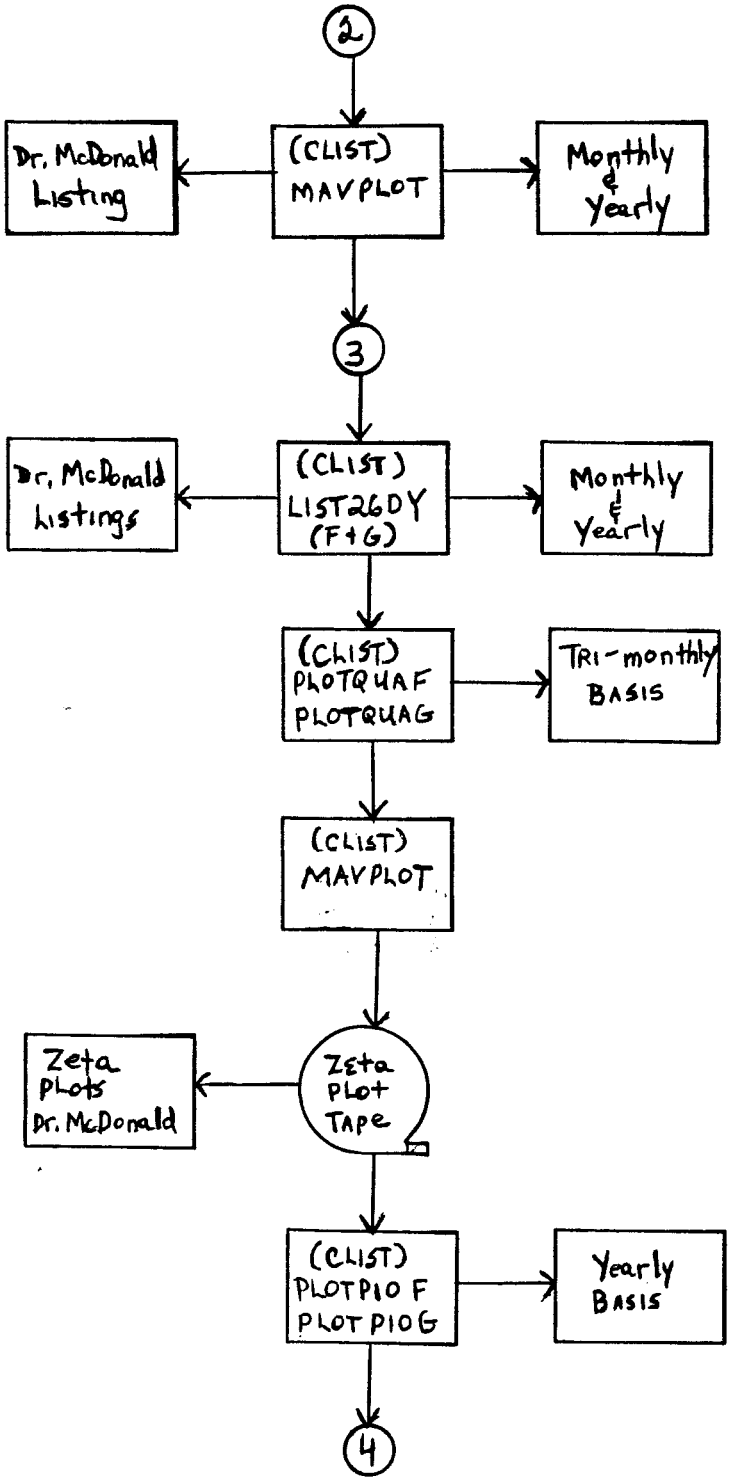
Program FLXLST will list data from the Flux tapes. At the current time, there is no JCL that will submit this program. Refer to reference 2, p. 73, for data card parameters.

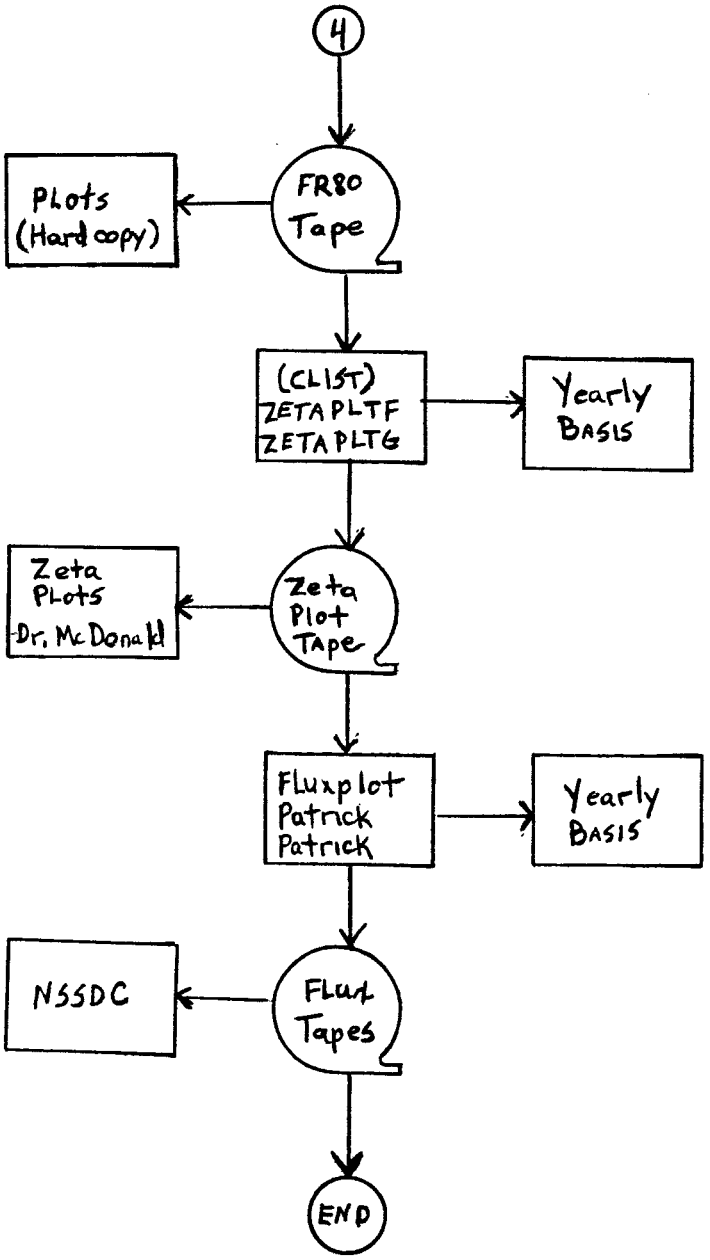
SECTION 15 – DIAGRAMS

15.1 PIONEER DATA FLOW DIAGRAM

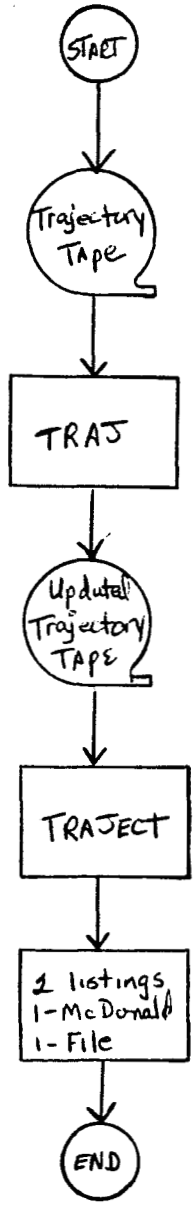



1
6250 TAPE
UPD6250 (clist)
PIONEER 10 or 11
11
3
10
Bit2ON
COPYVBS
FFRSUM
PATCH
PATRICK
PENC TAPE
(clist) UPDPENC
McDonald listing
(clist) LOADR2A
Monthly & Yearly
2


2
Dr. McDonald Listing
(CLIST) MAVPLOT
Monthly & Yearly
3
Dr. McDonald listings
(CLIST) LIST26DY (F+G)
Monthly & Yearly
(CLIST) PLOTQUAF PLOTQUAG
TRI-monthly BASIS
(CLIST) MAVPLOT
Zeta plots Dr. McDonald
Zeta Plot Tape
(CLIST) PLOTP10 F PLOTP10G
Yearly BASIS
4


4
FR80 Tape
Plots (Hard copy)
(CLIST) ZETAPLTF ZETAPLTG
Yearly Basis
Zeta Plot Tape
Zeta Plots Dr. McDonald
Fluxplot Patrick Patrick
Yearly Basis
Flux Tapes
NSSDC
END

15.2 SPECIAL TRAJECTORY TAPE PROCESSING DIAGRAM



SECTION 16 – TAPE STAGING AND STORAGE PROCEDURES

16.1 PURPOSE OF THE TAPE STAGING AND STORAGE CENTER (TSSC)

The Tape Staging and Storage Center (TSSC) is made available to users for storing boxes of magnetic tapes in an accessible manner in a controlled environment.

16.2 ASSIGNING SERIAL NUMBERS TO THE STORAGE BOXES

Serial numbers are assigned to each box of magnetic tapes according to the type of tapes contained within. For PIONEER, the type of tapes currently stored at TSSC are EDR tapes for both PIONEER–F and PIONEER–G satellites. In the near future, PHA and RATE tape backups will also be stored at TSSC.

For the PIONEER Experimenter Data Record (EDR) tapes, the serial numbers are seven digit numbers. For PIONEER–F, the prefix is PIOF followed by a three–digit number assigned in sequential order. For PIONEER–G, the prefix is PIOG followed by a three–digit number also assigned in sequential order. To determine the next sequential number to be assigned an updated copy of the Monthly Tape Storage Status Report must be obtained from the tape librarian for Code 664. See Appendix G for an example of the Monthly Tape Storage Status Report. N. Smith

Locate the last serial number assigned to the appropriate satellite on the Monthly Tape Storage Status Report, see Appendix G. Note the span of days contained in the last box in the description section of the Monthly Tape Storage Status Report. The next box of tapes should be assigned the next sequential serial number and the tapes should be the continuation of the span of days. The serial numbers should be continuous as well as the data on the EDR tapes contained in the boxes.

6.3 PROCEDURE FOR SENDING TAPES TO THE TAPE STAGING AND STORAGE CENTER (TSSC)

To request magnetic tape boxes to be stored at Tape Staging and Storage Center (TSSC), an Archival Tape Storage General Purpose Form needs to be submitted. See Appendix G for an example.

Follow the instructions on the back of the Archival Tape Storage General Purpose Form for completing the form. See Appendix G. The description portion of the form should contain the satellite, type of tape, and the time range on the tapes. The location portion of the Archival Tape Storage General Purpose Form should be blank, this is the storage location number assigned by TSSC.

Once the form is completed, it is sent to TSSC Code 562. Copy number 4 is retained and kept by the cosmic ray data technican A few days later, the boxes will be picked up by a courier and delivered to TSSC, they will assign the storage location numbers. Copy number 2 of the form containing the storage location numbers will be returned to you as a receipt by TSSC. The updated Monthly Tape Storage Status Report will reflect the new serial numbers and their storage locations.

If the boxes of tapes you are sending to TSSC were temporarily on loan, then the location number has already been assigned and should be included on the Archival Tape Storage General Purpose Form.

Magnetic tape storage boxes are available in the Cosmic Ray data room. These boxes are recognizable by the label on the front of the box. See Appendix G for an example. On the label, position 4 should contain the code D for digital, satellite, which is 356F for PIONEER–F and 356G for PIONEER–G, and the serial number you assigned. Position 6 on the label should contain a description of the magnetic tapes; this description should be the same as the description on the Archival Tape Storage General Purpose Form.

6.4 PROCEDURE FOR RECALLING TAPES FROM TAPE STAGING AND STORAGE CENTER (TSSC)

To request magnetic tape boxes to be recalled temporarily from TSSC, an Archival Tape Storage General Purpose Form needs to be submitted. See Appendix G for an example.

Follow the instructions on the back of the Archival Tape Storage General Purpose Form, see Appendix G.

Obtain the location number from the Monthly Tape Storage Status Report, see Appendix G for an example.

Send the request form to TSSC, Code 562. Retain copy 4 for your records. Copy 2 will be returned upon completion of your request by TSSC.

SECTION 17 – REFERENCES

1. Data Processing and Programmer's Guide for PIONEER–10 and PIONEER–11 Cosmic Ray Experiments, Volume 2, March 1982, CSC/TM–81/6203.

2. Data Processing and Programmer's Guide for PIONEER–10 and PIONEER–11 Cosmic Ray Experiments, Volume 1, February 1982, CSC/TM–81/6203.

APPENDIXES

APPENDIX A – DATA REDUCTION SYSTEM (DRS) CATALOG LISTING EXAMPLE

The following appendix contains an example listing of the DRS Catalog for PIONEER–F. This listing provides information on the current status of the PHA and RATE tapes, the updated catalog number, and the data span contained on the PHA and RATE tapes.

PIONEER DRS CATALOG MAINTENANCE RUN DATE OF RUN= 8/31/84 PAGE= 1

LISTING OF PIONEER F TAPE CATALOG NUMBER 4

	TOTAL GOOD	TOTAL BLANK	FIRST TAPE IN BLOCK	LAST TAPE IN BLOCK
PHA TAPES:	35	10	E00401	E00450
RATES TAPES:	40	4	E00300	E00349

CATALOG TAPE CONTENTS	PRIMARY TAPE	BACKUP TAPE	FILE LOCATION
BACKUP TAPE CATALOG FROM DISK	E00499	E00500	1
FILE/LOGISTICS/HISTORY CATALOG	E00499	E00500	2
COMMAND CATALOG	E00499	E00500	3
ATTITUDE CATALOG	E00499	E00500	4

NUMBER OF TRAJECTORY TAPES IN CATALOG(NUMTRJ) = 0

LAST ABSOLUTE FILE NUMBER ASSIGNED TO DATA(LSTAFN) = 1011
LAST TRACK USED BY FILE/LOGISTICS/HISTORY CATALOG(LSTLOG) = 6
LAST ENTRY USED BY FILE/LOGISTICS/HISTORY CATALOG IN LAST TRACK(NUMLOG) = 113

BLANK PHA TAPES

E00419 E00420 E00425 E00429 E00432 E00438 E00441 E00444 E00446 E00450

BLANK RATES TAPES

E00326 E00327 E00349 E00348

APPENDIX A

LISTING OF PIONEER F TAPE CATALOG NUMBER 4

CURRENT PHA TAPES

PHA TAPE	START TIME MM/DD/YY	START TIME HH/MM/SS.SSS	END TIME MM/DD/YY	END TIME HH/MM/SS.SSS	FEET USED
E00430	3/ 6/72	0/42/ 0.442	5/ 1/72	6/ 7/50.485	2201
E00431	5/ 1/72	6/ 7/50.485	5/ 1/72	10/ 4/50.596	36
E00437	5/ 1/72	10/ 4/50.596	5/13/72	18/57/ 7.869	2201
E00406	5/13/72	18/57/ 7.869	5/28/72	17/ 6/46.946	2201
E00410	5/28/72	17/ 6/46.947	6/11/72	14/53/11.738	2201
E00411	6/11/72	14/53/11.738	6/15/72	23/ 7/33.943	766
E00448	6/15/72	23/ 7/33.943	7/ 1/72	0/52/ 7.914	2201
E00449	7/ 1/72	0/52/ 7.915	7/10/72	23/40/29.141	1841
E00426	7/10/72	23/40/29.141	7/30/72	6/43/45.060	2200
E00409	7/30/72	6/43/45.061	8/28/72	15/36/ 0.646	2201
E00414	8/28/72	15/36/ 0.647	9/11/72	19/20/13.615	735
E00423	9/12/72	1/24/ 6.233	11/19/72	4/51/ 7.670	2201
E00424	11/19/72	4/51/ 7.672	11/20/72	23/17/26.654	49
E00413	11/20/72	23/17/26.654	11/24/72	21/37/ 9.873	61
E00442	11/25/72	1/56/14.677	4/ 7/73	0/58/33.459	2201
E00443	4/ 7/73	0/58/33.455	4/ 7/73	15/51/52.986	23
E00416	4/ 7/73	15/51/52.986	5/22/73	17/23/23.890	2201
E00417	5/22/73	17/23/23.891	5/24/73	0/34/20.958	74
E00421	5/24/73	0/34/20.970	6/21/73	10/39/31.156	2201
E00427	6/21/73	10/39/31.157	8/ 6/73	20/59/ 5.762	2201
E00428	8/ 6/73	20/59/ 5.766	9/ 1/73	15/26/23.035	1108
E00422	9/ 1/73	15/26/23.037	10/ 1/73	19/15/19.175	2201
E00440	10/ 1/73	19/15/19.176	11/ 4/73	18/33/48.858	2201
E00401	11/ 4/73	18/33/48.858	1/15/74	18/ 7/ 5.952	2201
E00402	1/15/74	18/ 7/ 5.964	1/18/74	10/38/ 7.716	8
E00447	1/18/74	10/38/ 7.718	3/ 2/74	8/13/10.597	208
E00439	3/ 2/74	8/13/10.598	3/ 2/74	21/16/49.601	5
E00433	3/ 2/74	21/16/49.615	9/17/74	12/45/ 9.803	2201
E00435	9/17/74	12/45/ 9.804	8/ 7/75	6/40/51.002	2201
E00436	8/ 7/75	6/40/51.003	8/ 8/75	14/35/33.209	14
E00404	8/ 8/75	14/35/33.211	3/10/76	9/40/ 4.748	2201
E00405	3/10/76	9/40/ 4.749	11/ 8/77	9/ 5/32.129	2201
E00434	11/ 8/77	9/ 5/32.131	4/25/80	22/10/53.870	2201
E00445	4/25/80	22/10/53.874	3/30/82	16/39/56.975	2120
E00418	3/31/82	7/55/ 9.280	8/ 7/84	7/51/ 6.658	1867

APPENDIX A

LISTING OF PIONEER F TAPE CATALOG NUMBER 4

CURRENT RATES TAPES

RATES TAPE	START TIME MM/DD/YY	START TIME HH/MM/SS.SSS	END TIME MM/DD/YY	END TIME HH/MM/SS.SSS	FEET USED
E00305	3/ 6/72	0/42/ 0.628	4/30/72	4/ 1/25.914	2201
E00328	4/30/72	4/ 1/25.916	5/10/72	17/58/30.616	2201
E00329	5/10/72	17/58/30.616	5/22/72	0/31/12.309	2201
E00330	5/22/72	0/31/12.309	5/30/72	22/52/ 5.764	964
E00331	5/30/72	22/52/ 5.764	6/11/72	0/51/ 0.549	2201
E00332	6/11/72	0/51/ 0.549	6/22/72	12/35/22.588	2201
E00333	6/22/72	12/35/22.588	6/27/72	10/ 2/58.301	616
E00334	6/27/72	10/ 2/58.301	7/ 8/72	6/ 7/ 3.225	2201
E00335	7/ 8/72	6/ 7/ 3.226	7/23/72	7/50/18.064	2201
E00336	7/23/72	7/50/18.064	7/25/72	14/13/25.827	413
E00346	7/25/72	14/13/25.827	8/18/72	19/36/46.227	2201
E00347	8/18/72	19/36/46.227	8/28/72	21/56/ 1.576	733
E00337	8/28/72	21/56/ 1.576	10/ 9/72	18/52/35.860	2201
E00301	10/ 9/72	18/52/35.862	10/11/72	23/34/32.232	52
E00304	10/11/72	23/34/32.193	12/31/72	23/24/ 2.726	2122
E00303	12/31/72	23/34/24.519	4/18/73	19/ 8/42.128	2201
E00306	4/18/73	19/ 8/42.129	4/18/73	21/38/42.186	13
E00314	4/18/73	21/38/42.187	5/27/73	21/19/43.277	2201
E00339	5/27/73	21/19/43.278	6/22/73	17/28/ 4.333	2201
E00342	6/22/73	17/28/ 4.334	8/ 1/73	22/27/30.214	2201
E00343	8/ 1/73	22/27/30.218	9/ 1/73	11/23/59.226	1384
E00311	9/ 1/73	11/23/59.227	9/29/73	11/24/ 0.473	2201
E00312	9/29/73	11/24/ 0.472	10/ 7/73	14/ 4/36.980	467
E00309	10/ 7/73	14/ 4/36.980	11/ 3/73	9/ 2/58.378	2201
E00310	11/ 3/73	9/ 2/58.379	11/ 4/73	17/30/13.214	99
E00317	11/ 4/73	17/30/13.215	12/14/73	11/ 4/ 8.287	2200
E00313	12/14/73	11/ 4/ 8.288	12/14/73	11/44/ 8.314	2
E00318	12/14/73	11/44/ 8.316	4/23/74	23/11/11.951	2176
E00315	4/23/74	23/11/11.950	7/27/74	4/16/21.170	2201
E00316	7/27/74	4/16/21.172	8/ 3/74	12/56/44.682	148
E00322	8/ 3/74	12/56/44.684	2/ 3/75	16/42/31.943	2201
E00323	2/ 3/75	16/42/31.944	2/ 5/75	20/27/33.372	10
E00338	2/ 5/75	20/27/33.372	8/16/75	9/ 1/59.738	2201
E00341	8/16/75	9/ 1/59.739	8/18/75	13/33/10.883	149
E00340	8/18/75	13/33/10.884	12/ 3/75	0/ 6/36.839	2201
E00325	12/ 3/75	0/ 6/36.839	3/11/77	18/ 7/44.082	2201
E00308	3/11/77	18/ 7/44.083	10/ 8/78	1/30/ 3.620	2201
E00307	10/ 8/78	1/30/ 3.626	12/31/80	20/51/41.478	2172
E00320	12/31/80	20/54/53.639	11/12/82	9/52/ 6.323	2201
E00324	11/12/82	9/52/ 6.327	8/ 7/84	7/51/18.658	1438

END OF CATALOG LIST

APPENDIX A

APPENDIX B – PIONEER MAINTENANCE LOG BOOK EXAMPLES

This appendix contains examples from the PIONEER maintenance log book, which is used to record all the PHA, RATE, and FLUX tapes with their associated backup tape volume numbers.

PHA TAPES

001, 002
DCPY PHA

ORIGINAL	DUPE	DATE	BLOCKS
E00430	E00451	10/21/76	4870
E00431	E00452	10/21/76	79
E00437	E00453	10/22/76	4875
E00406	E00454	10/22/76	4875
E00410	E00455	10/22/76	4874
E00411	E00456	10/22/76	1696
E00448	E00457	11/1/76	4875
E00449	E00458	10/22/76	4086
E00426	E00459	11/9/76	4871
E00409	E00460	10/22/76	4874
E00414	E00461	10/22/76	1626
E00423	E00462	10/22/76	4870
E00424	E00463	10/22/76	108
E00413	E00464	10/22/76	135
E00442	E00465	10/22/76	4872
E00443	E00466	10/22/76	163
E00416	E00467	10/22/76	289
E00417	E00468	10/22/76	2163
E00421	E00469	8/31/77	289
E00427	E00470	4/24/78	4874
E00428	E00471	4/24/78	2453
~~E00429~~ → 2 ~~E00422~~			
E00429	E00473	8/31/77	4874
E00440	E00474	8/31/77	4873
E00401	E00475	8/31/77	4855
E00402	E00476	8/31/77	18
E00407	E00477	8/31/77	457
E00439	E00478	8/31/77	11

15C
A ~~1200~~

ORIGINAL	DUPE	DATE	BLOCKS
E00433	E00479	8/31/77	4837
E00435	E00480	8/21/77	4842
E00436	E00481	8/31/77	30
E00404	E00482	8/31/77	4850
E00405	E00483	7/11/78	4853
E00434	E00484	7/26/81	4855
E00445	E00485	11/8/82	4671
E00418	E00486	9/5/84	4110
	E00487		
	E00488		
	E00489		
	E00490		
	E00491		
	E00492		

DO NOT GO BEYOND E00492.!!

PIONEER F
RATES TAPES

DC PY RAT

140

ORIGINAL	DUPE	DATE	BLOCKS
E00305	E00351	11/9/76	4367
E00328	E00352	11/1/76	4372
E00329	E00353	11/1/76	4372
E00330	E00354	11/1/76	1916
E00331	E00355	11/1/76	4371
E00332	E00356	11/1/76	4371
E00333	E00357	11/1/76	1224
E00334	E00358	11/1/76	4373
E00335	E00359	11/1/76	4371
E00336	E00360	11/1/76	820
E00346	E00361	11/1/76	4371
E00347	E00362	11/1/76	1465
E00337	E00363	11/1/76	4369
E00301	E00364	11/1/76	104
E00304	E00365	11/2/76	4210
E00303	E00366	11/1/76	4366
E00306	E00367	11/1/76	25
E00314	E00368	11/1/76	4368
E00339	E00369	11/1/76	4372
E00302	E00370	11/1/76	4340
E00343	E00371	11/1/76	2749
E00311	E00372	11/2/76	4370
E00312	E00373	11/1/76	2749
E00309	E00374	11/1/76	4370
E00310	E00375	11/1/76	196
E00317	E00376	11/1/76	4345
E00313	E00377	11/1/76	4
E00318	E00378	11/2/76	4272

A -

ORIGINAL	DUPE	DATE	BLOCKS
E00315	E00379	11/2/76	4319
E00316	E00380	11/2/76	291
E00322	E00381	11/5/76	4328
E00323	E00382	11/2/76	20
E00338	E00383	11/2/76	4324
E00341	E00384	11/2/76	896
E00340	E00385	11/2/76	4339
E00325	E00386	7/11/81	4341
E00308	E00387	3/21/79	4358
E00307	E00388	2/21/81	4299
E00320	E00389	12/17/82	4351
E00324	E00390	9/5/84	2841
	E00391		

400 !!

DO NOT GO BEYOND ~~E00399~~ !!

392 - 400 OK

(...)FTPCPY = 1600-1600 (... 120)
(...)F41TO1F = 1600-6250 (... 70,80)
(...)FTPCPY4 = 6250-6250 (... 120)

F6250-[illegible]
6250 SOURCE
FTPCPY
F4TO1G
FTPCPY4

PIONEER - F FLUX DUPS

1600 BPI FLUX TP.	1600 BACK-UP	ERRORS ON INPUT	6250 FLUX TP.	6250 BACK-UP
E00501	E03001	0	0	
510	02	0	0	
512	03	0	0	
516	04	0	0	
			0 Z480	0 ~~E03041~~
E00520	E03005	0	0	
46	06	0	0	
27	07	0	0	
30	08	0	0	
			0 Z481	0 ~~E03042~~
E00539	E03009	0	0	
47	10	0	0	
48	11	0	0	
04	12	0	0	
			0 Z482	0 ~~E03043~~
E00506	E03013	0	0	
15	14	0	0	
25	15	0	0	
21	16	0	0	
			0 Z483	0 ~~E03044~~
E00534	E03017	0	0	
02	18	0	0	
03	19	0	0	
05	20	0	0	
			0 Z484	0 ~~E03045~~
E00517	E03021	0	0	
07	22	0	0	
08	23	0	0	
09	24	0	0	
			0 Z485	0 ~~E03046~~
E00529	E03025	0	0	
43	26	0	0	
44	27	0	0	
28	28	0	0	
			0 Z486	0 ~~E03047~~
E00511	E03029	0	0	
540	30	0	0	
531	31	0	0	
533	32	0	0	
			0 Z487	0 ~~E03048~~
E00524	E03033	0	0	
519	34	0	0	
549	35	0	0	
532	36	0	0	
			0 Z488	0 ~~E03049~~

7/13/82

E00541	E03037	0	0	
537	E03038	0	0	
[illegible]	E03039	0	0	
[illegible]	E03040	0	0	
			.01 Z489	0 E03050

11/25/83

FLUX REF ENC FLUX TAPE
E0056[illegible] E03040

PIONEER - G FLUX DUPS

1600 FLUX TP.	1600 BACK-UP	ERRORS ON INPUT	6250 FLUX TP.	6250 BACK-UP
E00595	E03051	0	0	
571	52	0	0	
576	53	0	0	
577	54	0	0	
			0 Z811	0 ~~E03091~~
E00580	E03055	0	0	
83	56	0	0	
84	57	0	0	
91	58	0	0	
			0 Z812	0 ~~E03092~~
E0551	E03059	0	0	
52	60	0	0	
59	61	0	0	
65	62	0	0	
			0 Z813	0 ~~E03093~~
E00568	E03063	0	0	
69	64	0	0	
70	65	0	0	
75	66	0	0	
			0 Z814	0 ~~E03094~~
E00560	E03067	0	0	
61	68	0	0	
63	69	0	0	
72	70	0	0	
			0 Z815	0 ~~E03095~~
E00599	E03071	0	0	
585	72	0	0	
600	73	0	0	
553	74	0	0	
			0 Z816	0 ~~E03096~~
E00554	E03075	0	0	
555	76	0	0	
558	77	0	0	
578	78	0	0	
			0 Z817	0 ~~E03097~~
E00556	E03079	0	0	
E00589	80		0	
E00588	81	0	0	
E00567	82	0	0	
			0 Z818	0 ~~E03098~~

11/10/81 →

E00581	E03083	0	0	
E00562	E03084	0	0	
E00596	E03085	0	0	
E00573	E03086	0	0	
			0 Z819	0 ~~E03099~~

11/2/82

FTPC[illegible]
G[illegible] [illegible]
E00597 E03090

PIONEER-F FLUX DUPS

1600 BPI Flux Tape	1600 Backup	Errors on Input	6250 Flux Tape	6250 Backup
E00526	E03041	0 0	2490	~~E03051~~
E00513	E03042	0 0		
E00514	E03043	0 0		
E00550	E03044	0 0		
			as of 1/2/84	
E00535	E03045	0 0	2491	
E00545	E03046	0 0		
	E03047	0 0		
	E03048	0 0		
				9/5/84

1600 — Thru E03050
Thru 2495

PIONEER-G FLUX DUPS

1600 Flux Tape	1600 Backup	Errors on Input	6250 Flux Tape	6250 Backup
E00593	E03087	0 0	2820	~~E0308~~
E00590	E03088	0 0		
E00586	E03089	0 0		
E00574	E03090			
			as of 1/10/84	
E00598	E03091	0 0	2821	
E00582	E03092	0 0		
	E03093	0 0		
	E03094	0 0		
				9/5/8

1600 — THRU E03100
THRU 2825

APPENDIX C – CLIST EXECUTION EXAMPLES

This appendix contains various examples of CLIST execution for LIST26DY, LOADR2A, LSTCAT, MAVPLOT, PLOTPIOF, PLOTPIOG, PLOTQUAF, PLOTQUAG, and TRAJECT.

APPENDIX C

```
-------------------------- TSO COMMAND PROCESSOR -----------------------------
ENTER TSO COMMAND OR CLIST BELOW:
                     90:91           100:101     Class F
===> list26dy lin1(70:71) lin2(80:81) copies(2)       Class N

                     50:51           60:61       Class E
                     30:31           40:41       Class A
ENTER SATTELLITE ID. (F OR G) f

THE 26 DAY FLUX MUST BE RUN FOR SPECIFIC 26 DAY INTERVALS.
WOULD TOU LIKE A LIST OF THE POSSIBLE 26 DAY PERIODS? (YES/NO). yes

DO YOU WANT LEAP YEAR PERIODS ? (YES/NO) yes

THE LEAP YEAR 26 DAY PERIODS ARE AS FOLLOWS:

PERIOD    START DATE    END DATE
--------------------------------
   1        01/01        01/27
   2        01/27        02/22
   3        02/22        03/19
   4        03/19        04/14
   5        04/14        05/10
 ***
   6        05/10        06/05
   7        06/05        07/01
   8        07/01        07/27
   9        07/27        08/22
  10        08/22        09/17
  11        09/17        10/13
  12        10/13        11/08
  13        11/08        12/04
  14        12/04        12/30
THE USER MAY INPUT ANY VALID START DATE AND END DATE.
ONLY ONE YEAR PER RUN (IE. 77/01/01 TO 77/12/31 LISTS ALL 14 PERIODS IN 1977).
ENTER START DATE OF FIRST 26 DAY PERIOD TO BE LISTED.
YY/MM/DD 84/01/01

ENTER END DATE OF LAST 26 DAY PERIOD TO BE LISTED.
YY/MM/DD 84/07/01

SAVED
SAVED
056 ENTER INPUT. LAST LINE IS "ENDINPUT" *
999 * JOB(S) SUBMITTED *
056 ENTER INPUT. LAST LINE IS "ENDINPUT" *
999 * JOB(S) SUBMITTED *
***
ENTRY (A) SB#PR.A26DYFXF.CNTL DELETED
ENTRY (A) SB#PR.A26DYMXF.CNTL DELETED
THE OUTPUT FROM THESE JOBS WILL BE DILIVERED TO BF3.
PLEASE FILE THESE PRINTOUTS WITH SIMILAR RUNS IN BLDG 2 RM 242.
DO YOU WANT TO RUN 26 DAY ANALYSIS FOR OTHER TIME PERIODS? (YES/NO) no
```

```
***
------------------------  TSO COMMAND PROCESSOR  ------------------------------
ENTER TSO COMMAND OR CLIST BELOW:

===> loadr2a


ENTER SATELLITE ID. (F OR G) f

ENTER START TIME FOR SI CARD IN YY/MM/DD FORMAT.
YY/MM/DD 84/01/01

ENTER END TIME FOR SI CARD.
YY/MM/DD 84/02/01

SAVED
OUTPUT FROM XRKAWLDF WILL GO TO THE FETCH QUEUE
056 ENTER INPUT. LAST LINE IS "ENDINPUT" *
999 * JOB(S) SUBMITTED *
ISSUE 'MAVPLOT' COMMAND WHEN NOTIFIED OF XRKAWLDF COMPLETION.
THE DATA SET CONTAINING THE LIST DATA WILL BE 'SB#PR.R2AF.DATA'.
ENTRY (A) SB#PR.LODR2A.CNTL DELETED

***
```

```
------------------------  TSO COMMAND PROCESSOR  ------------------------------
ENTER TSO COMMAND OR CLIST BELOW:

===> lstcat


YOU ARE LISTING THE CURRENT PIONEER COSMIC RAY TAPE CATALOGS ON
THR SEP 13,1984 @ 10:16:27.58
JOB04674 XRKAWDRF SCHEDULED
JOB04676 XRKAWDRG SCHEDULED
JOB04677 XRKAWFLS SCHEDULED




***
```

```
---------------------------  TSO COMMAND PROCESSOR  ------------------------------
ENTER TSO COMMAND OR CLIST BELOW:

===> mavplot


HAVE YOU CREATED A DATA SET CONTAINING THE FLUXPLOT DATA? (YES/NO) yes

ENTER THE DATA SET NAME CONTAINING THE FLUXPLOT 'LIST' DATA.
USE THE FULLY QUALIFIED NAME , BUT NO QUOTES. sb#pr.r2af.data

ENTER OUTPUT DATA SET FOR SD4060 PLOT CODE (FULL NAME , NO QUOTES) sb#pr.temp.d
ata
Ddfault character assignments have been changed.
Character code assignments are: 1,4,2,0,5

Enter averaging interval: days,hours,min,sec
? 1,0,0,0

Enter number of intervals to average
? 5

***
5
Enter maximum number of points per frame.
This should be the same as on S card of FLUX job
MAXIMUM VALUE ALLOWED IS 500.
? 372

If listing is desired, enter T, otherwise enter /.
? t

If linear plot is desired, enter T, otherwise enter /.
? /

Enter T for manual grid specification, / otherwise
? /

PIONEER-F    FLUX FOR THE PERIOD  1/ 1/84  0: 0: 0 TO  1/31/84  0: 0: 0      5
INTERVAL MOVING AVERAGE - INTERVAL =    1: 0: 0: 0
A = (R2A / 1.000E 00) + (R3A/1.000E 00)                          R2A = A1.^A2.B.C3
CURRENT ORDINATE LIMITS ARE  1.0000E-01 1.0000E+03
ENTER OVERRIDING LIMITS, AND INDICATE WHETHER FURTHER PROMPTING FOR LIMITS IS D
ESIRED. T(/)=YES; F=NO
? /,/,f

***
/,/,f
ENTER SKIP OPTION AND SKIP-ENABLE FLAG. T=SKIP(ENABLED); F=DO NOT SKIP(DISABLED
)
? f,f

A = (R2A / 1.000E 00) + (R3A/1.000E 00)                          R2A = A1.^A2.B.C3
ENTER PLOT CHARACTER, AND PLOT-CHARACTER CHANGE ENABLE FLAG.
? /,f

ENTER STOP OPTION AND STOP-ENABLE FLAG.
? f,f

    0 FRAMES OF OUTPUT GENERATED----------------------------------------------
DID YOU REPLY 'T' TO THE LISTING OPTION ? (YES/NO) yes

PROCESSING HAS BEEN COMPLETED FOR DATASET:
XRKAW.OUTMAV.DATA
ENTRY (A) XRKAW.OUTMAV.DATA DELETED <- not stored
DO YOU WANT TO RUN THE TOZETA OR TOCAL PROGRAM NOW? (YES/NO) no

DO YOU WANT TO COPY THE SD4060 DATA SET TO TAPE? (YES/NO) no

ENTER THE COMMAND 'CNV4060' TO CREATE CALCOMP OR ZETA PLOTS, OR
 ***
```

?

```
---------------------------  TSO COMMAND PROCESSOR  ------------------------------
NTER TSO COMMAND OR CLIST BELOW:

=> plotpiof



NTER START DATE IN YY/MM/DD FORMAT.
//MM/DD 84/01/01

NTER END DATE IN YY/MM/DD FORMAT.
//MM/DD 85/01/01

HE POSSIBLE PIONEER PLOT TAPES ARE PI001-PI015.
NTER PLOT TAPE NUMBER.
(XXXX pio01

AVED
JB04696 XRKAWRTF SCHEDULED
NTRY (A) SB#PR.ARTPLTF.CNTL DELETED
HEN XRKAWRTF ENDS TAKE PI001 TO THE FR80 IN BLDG. #23.
ROCESS FILE 1. REQUEST 1 HARDCOPY. THE # OF FRAMES IS PRINTED
IN THE OUTPUT LISTING.
**
```

```
------------------------  TSO COMMAND PROCESSOR  ------------------------------
NTER TSO COMMAND OR CLIST BELOW:

==> plotpios



NTER START DATE IN YY/MM/DD FORMAT.
Y/MM/DD 83/01/01

NTER END DATE IN YY/MM/DD FORMAT.
Y/MM/DD 84/01/01

HE POSSIBLE PIONEER PLOT TAPES ARE PI001-PI015.
NTER PLOT TAPE NUMBER.
(XXXX pio01

AVED
JB09700 XRKAWRTG SCHEDULED
NTRY (A) SB#PR.ARTPLTG.CNTL DELETED
AVED
JB09704 XRKAWELG SCHEDULED
NTRY (A) SB#PR.AELECTG.CNTL DELETED
**
AVED
JB09705 XRKAWPRG SCHEDULED
NTRY (A) SB#PR.APROTONG.CNTL DELETED
HEN XRKAWRTG,XRKAWELG AND XRKAWPRG END TAKE PI001 TO
FR80 IN BLDG. #23. PLOT FILES 1,2 AND 3. REQUEST 1 HARDCOPY. THE
F OF FRAMES / FILE IS LISTED IN THE OUTPUT LISTING OF EACH JOB.




**
```

```
------------------------  TSO COMMAND PROCESSOR  ----------------------------
:NTER TSO COMMAND OR CLIST BELOW:

==> plotquaf lin1(10:11) lin2(20:21)



'HIS CLIST WILL SUBMIT THE REQUIRED PIONEER-F FLUXPLOT RUN TO
REATE THE DATASET NECESSARY FOR INPUT INTO THE CLIST, MAVPLOT.
'HESE STANDARD ANALYSIS PLOTS NEED TO BE CREATED WHEN THE
ATA EXISTS FOR THREE FULL MONTHES OF DATA IN THE
'ENC DATABASE.
O YOU WANT TO CONTINUE? (YES/NO) yes

UARTERLY PLOTS SHOULD CONFORM TO THE FOLLOWING PERIODS:
      01/01  -   04/01
      04/01  -   07/01
      07/01  -   10/01
      10/01  -   01/01
:NTER THE START DATE TO APPEAR ON THE FLUXPLOT SI CARD.
'Y/MM/DD 84/01/01

:NTER THE END DATE TO APPEAR ON THE FLUXPLOT SI CARD.
**
'Y/MM/DD 84/04/01

AVED
56 ENTER INPUT. LAST LINE IS "ENDINPUT" *
99 * JOB(S) SUBMITTED *
:NTRY (A) SB#PR.ASPECF1.CNTL DELETED
AVED
56 ENTER INPUT. LAST LINE IS "ENDINPUT" *
99 * JOB(S) SUBMITTED *
:NTRY (A) SB#PR.ASPECF2.CNTL DELETED
HEN THE XRKAWASF COMPLETES, THE DATASET 'SB#PR.ASPECF1.DATA'
AS BEEN CREATED. USE MAVPLOT TO CREATE THE ZETA PLOTTER TAPE.
'SB#PR.ASPECF1.DATA' CONTAINS 2 FRAMES, EACH FRAME SHOULD BE
'LOTTED AS FOLLOWS;
    FRAME 1: SEMI-LOG,  10-5 TO 10+3
             HEIGHT 16" LENGTH 9.3"
    FRAME 2: SEMI-LOG,  10-3 TO 10
             HEIGHT 12" LENGTH 9.3"
HEN THE XRKAWAF2 COMPLETES, THE DATASET 'SB#PR.ASPECF2.DATA'
AS BEEN CREATED. USE MAVPLOT TO CREATE THE ZETA PLOTTER TAPE.
'SB#PR.ASPECF2.DATA' CONTAINS 1 FRAME,  THIS FRAME SHOULD BE
'LOTTED AS FOLLOWS;
    FRAME 1: LINEAR,    .08 - .24
***
             HEIGHT 16" LENGTH 9.3"
        NOTE: PLOT THIS FRAME ON A DAILY BASIS AND A 5 DAY
              MOVING AVERAGE.
              USE BLACK INK, 36" PAPER, AND THE DEFAULT PLOT
              CHARACTERS PROVIDED BY MAVPLOT.
```

```
***
------------------------- TSO COMMAND PROCESSOR -------------------------------
ENTER TSO COMMAND OR CLIST BELOW:

===> plotquas lin1(10:11) lin2(20:21)



THIS CLIST WILL SUBMIT THE REQUIRED PIONEER-G FLUXPLOT RUNS TO
CREATE THE DATASETS NECESSARY FOR INPUT INTO THE CLIST, MAVPLOT.
THESE STANDARD ANALYSIS PLOTS NEED TO BE CREATED WHEN
THE DATA EXISTS FOR THREE FULL MONTHES OF DATA IN THE
5250 DATABASE.
DO YOU WANT TO CONTINUE? (YES/NO) yes

QUARTERLY PLOTS SHOULD CONFORM TO THE FOLLOWING PERIODS:
      01/01  -   04/01
      04/01  -   07/01
      07/01  -   10/01
      10/01  -   01/01
ENTER THE START DATE TO APPEAR ON THE FLUXPLOT SI CARD.
'Y/MM/DD 84/01/01

ENTER THE END DATE TO APPEAR ON THE FLUXPLOT SI CARD.
***
'Y/MM/DD 84/04/01

SAVED
056 ENTER INPUT. LAST LINE IS "ENDINPUT" *
299 * JOB(S) SUBMITTED *
ENTRY (A) SB#PR.ASPECG1.CNTL DELETED
SAVED
056 ENTER INPUT. LAST LINE IS "ENDINPUT" *
299 * JOB(S) SUBMITTED *
ENTRY (A) SB#PR.ASPECG2.CNTL DELETED
THE XRKAWAG1 COMPLETES THE DATASET SB#PR.ASPECG1.DATA
WILL CONTAIN ONE FRAME FOR USE BY MAVPLOT. THIS PLOT SHOULD
BE SEMI-LOG WITH VERTICAL SCALE LIMITS OF 10-5 TO 10+3. THE
LENGTH IS 9.3" AND THE HEIGHT IS 16".
WHEN XRKAWAG2 COMPLETES THE DATASET SB#PR.ASPECG2.DATA
WILL CONTAIN ONE FRAME FOR USE BY MAVPLOT. THIS PLOT SHOULD
BE SEMI-LOG WITH VERTICAL SCALE LIMITS OF 10-3 TO 10+0. THE
LENGTH IS 9.3" AND THE HEIGHT IS 12".
        NOTE: USE BLACK INK, 36" PAPER, AND THE DEFAULT PLOT
              CHARACTERS PROVIDED BY MAVPLOT.



***
```

```
---------------------------  TSO COMMAND PROCESSOR  ------------------------------
NTER TSO COMMAND OR CLIST BELOW:
                      30 31       40 41
==> traject lin1(70:71) lin2(80:81)


HIS CLIST WILL SUBMIT THE TRAJECTORY DATA BASE GENERATOR
ROGRAM AND SUBMIT THE TRAJECTORY TAPE LIST PROGRAM. THERE
S AN OPTION TO SUBMIT ONLY THE TRAJECTORY TAPE LIST PROGRAM.
) YOU WANT TO CONTINUE?   (YES OR NO) Yes

NTER THE SATELLITE ID  (F OR G) f

) YOU WANT TO SUBMIT THE TRAJECTORY DATA BASE GENERATOR AND
HE TRAJECTORY TAPE LIST PROGRAM? (YES OR NO) Yes

NTER THE VOLUME SERIAL NUMBER OF THE INPUT TRAJECTORY DATA
APE? e02110

S 'E02110' CORRECT? (YES OR NO) Yes

NTER THE OUTPUT FILE NUMBER FOR 'HGD035'
+*
NN 030

S '030' CORRECT? (YES OR NO) Yes

AVED
56 ENTER INPUT. LAST LINE IS "ENDINPUT" *
99 * JOB(S) SUBMITTED *
NTRY (A) SB#PR.TRAJ.CNTL DELETED
AVED
56 ENTER INPUT. LAST LINE IS "ENDINPUT" *
99 * JOB(S) SUBMITTED *
NTRY (A) SB#PR.TRAJLST.CNTL DELETED




+*
```

APPENDIX D – FLUX CATALOG LISTING EXAMPLE

This appendix contains an example of the PIONEER–F Flux catalog listing. This catalog listing provides examples of the EDR, 6250, and PENC source tape listings for PIONEER–F.

LISTING OF FLUX SUMMARY CATALOG FOR PIONEER-F

NAME OF PHA DATASET IS PIOPHA , NAME OF RATES DATASET IS PIORAT

THERE ARE 157 ENTRIES IN THE RATES TABLE. THEY ARE STORED IN RECORDS130 THROUGH138 OF THIS DATASET

DETECTOR DESCRIPTION INFORMATION IS STORED IN RECORD 4BLANK TAPE RESERVOIR IS STORED IN RECORD 71

THERE ARE 4 FLUX DATASETS FOR THIS SPACECRAFT

DATA SET ATTRIBUTES:

SUMMARY INTERVAL 900 SECONDS, SOURCE EDR (RATES) TREND CHECK FLAG T (PHA) CALIBRATION MODE FLAG F
FIRST INTERVAL NUMBER 6241 LAST INTERVAL NUMBER 438797
USED TAPE ARRAY BEGINS ON RECORD140
FIRST INTERVAL ON UTILITY TAPE IS 97594 UTILITY DATA IS ON TAPE E00511

LISTING OF FLUX TAPES FOR THIS DATASET

START AFN	YY/MM/DD/HR MN SEC	END AFN	YY/MM/DD HR MN SEC	TAPE	ALLOCATION	# WRITTEN
6241	72/ 3/ 6 0 0 0	12444	72/ 5/ 9 14 45 0	E00501	1100	1100
12445	72/ 5/ 9 15 0 0	16232	72/ 6/18 1 45 0	E00510	1100	1100
16233	72/ 6/18 2 0 0	20264	72/ 7/30 1 45 0	E00512	1100	1100
20265	72/ 7/30 2 0 0	22336	72/ 8/20 15 45 0	E00516	1100	1100
22337	72/ 8/20 16 0 0	29187	72/10/31 0 30 0	E00520	1100	1100
29188	72/10/31 0 45 0	37627	73/ 1/26 22 30 0	E00546	1150	1100
37628	73/ 1/26 22 45 0	45766	73/ 4/21 17 15 0	E00527	1100	1100
45767	73/ 4/21 17 30 0	52670	73/ 7/ 2 15 15 0	E00530	1100	1100
52671	73/ 7/ 2 15 30 0	60190	73/ 9/18 23 15 0	E00539	1100	1100
60191	73/ 9/18 23 30 0	67408	73/12/ 3 3 45 0	E00547	1150	1106
67409	73/12/ 3 4 0 0	76950	74/ 3/12 13 15 0	E00548	1150	1100
76951	74/ 3/12 13 30 0	87369	74/ 6/29 2 0 0	E00504	1300	1098
87370	74/ 6/29 2 15 0	97593	74/10/13 14 0 0	E00506	1300	1101
97594	74/10/13 14 15 0	108307	75/ 2/ 2 4 30 0	E00515	1300	1100
108308	75/ 2/ 2 4 45 0	119329	75/ 5/28 0 0 0	E00525	1300	1100
119330	75/ 5/28 0 15 0	129117	75/ 9/ 6 23 0 0	E00521	1100	1100
129118	75/ 9/ 6 23 15 0	139093	75/12/19 21 0 0	E00534	1200	1101
139094	75/12/19 21 15 0	149808	76/ 4/ 9 11 45 0	E00502	1250	1097

149809	76/ 4/ 9 12 0 0	161100	76/ 8/ 5 2 45 0	E00503	1150	1099
161101	76/ 8/ 5 3 0 0	171973	76/11/26 9 0 0	E00505	1150	1100
171974	76/11/26 9 15 0	181042	77/ 2/28 20 15 0	E00517	1300	1082
181043	77/ 2/28 20 30 0	191756	77/ 6/20 10 45 0	E00507	1300	1204
191757	77/ 6/20 11 0 0	201366	77/ 9/28 13 15 0	E00508	1250	1114
201367	77/ 9/28 13 30 0	210328	77/12/30 21 45 0	E00509	1300	1063
210329	77/12/30 22 0 0	221576	78/ 4/27 1 45 0	E00529	1300	1254
221577	78/ 4/27 2 0 0	232417	78/ 8/18 0 0 0	E00543	1300	1180
232418	78/ 8/18 0 15 0	241810	78/11/23 20 15 0	E00544	1300	1060
241811	78/11/23 20 30 0	254440	79/ 4/ 4 9 45 0	E00528	1300	1299
254441	79/ 4/ 4 10 0 0	266951	79/ 8/12 17 30 0	E00511	1250	1203
266952	79/ 8/12 17 45 0	276699	79/11/22 6 30 0	E00540	1150	1058
276700	79/11/22 6 45 0	286721	80/ 3/ 5 16 0 0	E00531	1100	1100
286722	80/ 3/ 5 16 15 0	297940	80/ 6/30 12 45 0	E00533	1150	1164
297941	80/ 6/30 13 0 0	308367	80/10/17 3 30 0	E00524	1300	1098
308368	80/10/17 3 45 0	318514	81/ 1/30 20 15 0	E00519	1300	1086
318515	81/ 1/30 20 30 0	329987	81/ 5/30 8 30 0	E00549	1300	1174
329988	81/ 5/30 8 45 0	340786	81/ 9/19 20 15 0	E00532	1300	1136
340787	81/ 9/19 20 30 0	351196	82/ 1/ 6 6 45 0	E00541	1100	1100
351197	82/ 1/ 6 7 0 0	361502	82/ 4/23 15 15 0	E00537	1150	1102
361503	82/ 4/23 15 30 0	371928	82/ 8/10 5 45 0	E00522	1150	1075
371929	82/ 8/10 6 0 0	382303	82/11/26 7 30 0	E00518	1200	1100
382304	82/11/26 7 45 0	392803	83/ 3/15 16 30 0	E00526	1250	1115
392804	83/ 3/15 16 45 0	404533	83/ 7/15 21 0 0	E00513	1300	1198
404534	83/ 7/15 21 15 0	415538	83/11/ 7 12 15 0	E00514	1150	1087
415539	83/11/ 7 12 30 0	426892	84/ 3/ 4 18 45 0	E00550	1150	1137
426893	84/ 3/ 4 19 0 0	438784	84/ 7/ 6 15 45 0	E00535	1150	1150
438785	84/ 7/ 6 16 0 0	438797	84/ 7/ 6 19 0 0	E00538	1100	2

LISTING OF BLANK TAPES FOR THIS SPACECRAFT

THERE ARE 1 BLANK TAPES IN THE ARRAY

BLANK TAPES ARE:

E00545 ,

LISTING OF FLUX SUMMARY CATALOG FOR PIONEER-F

NAME OF PHA DATASET IS PIOPHA , NAME OF RATES DATASET IS PIORAT

THERE ARE 157 ENTRIES IN THE RATES TABLE. THEY ARE STORED IN RECORDS130 THROUGH138 OF THIS DATASET

DETECTOR DESCRIPTION INFORMATION IS STORED IN RECORD 4BLANK TAPE RESERVOIR IS STORED IN RECORD 71

THERE ARE 4 FLUX DATASETS FOR THIS SPACECRAFT

DATA SET ATTRIBUTES:

SUMMARY INTERVAL 900 SECONDS, SOURCE 6250 (RATES) TREND CHECK FLAG T (PHA) CALIBRATION MODE FLAG F
FIRST INTERVAL NUMBER 6241 LAST INTERVAL NUMBER 438797
USED TAPE ARRAY BEGINS ON RECORD127
FIRST INTERVAL ON UTILITY TAPE IS 83713 UTILITY DATA IS ON TAPE E03068

LISTING OF FLUX TAPES FOR THIS DATASET

START AFN	YY/MM/DD/HR MN SEC	END AFN	YY/MM/DD HR MN SEC	TAPE	ALLOCATION	# WRITTEN
6241	72/ 3/ 6 0 0 0	22336	72/ 8/20 15 45 0	Z480	1100	1100
22337	72/ 8/20 16 0 0	52670	73/ 7/ 2 15 15 0	Z481	1100	1100
52671	73/ 7/ 2 15 30 0	87369	74/ 6/29 2 0 0	Z482	1100	500
87370	74/ 6/29 2 15 0	129117	75/ 9/ 6 23 0 0	Z483	0	0
129118	75/ 9/ 6 23 15 0	171973	76/11/26 9 0 0	Z484	0	0
171974	76/11/26 9 15 0	210328	77/12/30 21 45 0	Z485	0	0
210329	77/12/30 22 0 0	254440	79/ 4/ 4 9 45 0	Z486	0	0
254441	79/ 4/ 4 10 0 0	297940	80/ 6/30 12 45 0	Z487	0	0
297941	80/ 6/30 13 0 0	340786	81/ 9/19 20 15 0	Z488	0	0
340787	81/ 9/19 20 30 0	382303	82/11/26 7 30 0	Z489	0	0
382304	82/11/26 7 45 0	426892	84/ 3/ 4 18 45 0	Z490	0	0
426893	84/ 3/ 4 19 0 0	438797	84/ 7/ 6 19 0 0	Z491	0	0

LISTING OF BLANK TAPES FOR THIS SPACECRAFT

THERE ARE 1 BLANK TAPES IN THE ARRAY

BLANK TAPES ARE:

E00545 ,

LISTING OF FLUX SUMMARY CATALOG FOR PIONEER-F

NAME OF PHA DATASET IS PIOPHA , NAME OF RATES DATASET IS PIORAT

THERE ARE 157 ENTRIES IN THE RATES TABLE. THEY ARE STORED IN RECORDS130 THROUGH138 OF THIS DATASET

DETECTOR DESCRIPTION INFORMATION IS STORED IN RECORD 4BLANK TAPE RESERVOIR IS STORED IN RECORD 71

THERE ARE 4 FLUX DATASETS FOR THIS SPACECRAFT

DATA SET ATTRIBUTES:

SUMMARY INTERVAL 900 SECONDS, SOURCE PENC (RATES) TREND CHECK FLAG T (PHA) CALIBRATION MODE FLAG F
FIRST INTERVAL NUMBER 52671 LAST INTERVAL NUMBER 438797
USED TAPE ARRAY BEGINS ON RECORD249
FIRST INTERVAL ON UTILITY TAPE IS 95110 UTILITY DATA IS ON TAPE E00243

LISTING OF FLUX TAPES FOR THIS DATASET

START AFN	YY/MM/DD/HR MN SEC	END AFN	YY/MM/DD HR MN SEC	TAPE	ALLOCATION	# WRITTEN
52671	73/ 7/ 2 15 30 0	87369	74/ 6/29 2 0 0	PENC01	0	0
87370	74/ 6/29 2 15 0	129117	75/ 9/ 6 23 0 0	PENC02	0	0
129118	75/ 9/ 6 23 15 0	171973	76/11/26 9 0 0	PENC03	0	0
171974	76/11/26 9 15 0	210328	77/12/30 21 45 0	PENC04	0	0
210329	77/12/30 22 0 0	254440	79/ 4/ 4 9 45 0	PENC05	0	0
254441	79/ 4/ 4 10 0 0	297940	80/ 6/30 12 45 0	PENC06	0	0
297941	80/ 6/30 13 0 0	340786	81/ 9/19 20 15 0	PENC07	0	0
340787	81/ 9/19 20 30 0	382303	82/11/26 7 30 0	PENC08	0	0
382304	82/11/26 7 45 0	426892	84/ 3/ 4 18 45 0	PENC09	0	0
426893	84/ 3/ 4 19 0 0	438797	84/ 7/ 6 19 0 0	PENC10	0	0

LISTING OF BLANK TAPES FOR THIS SPACECRAFT

THERE ARE 1 BLANK TAPES IN THE ARRAY

BLANK TAPES ARE:

E00545 ,
SOURCE NAME IS

APPENDIX E – JULIAN CALENDAR, BASED ON BASE YEAR 1972

This appendix provides a Julian calendar, based on the base year of 1972, for the years 1972 to 1985. This calendar is necessary in calculating the absolute file numbers for PIONEER–F and PIONEER–G.

***** JULIAN CALENDAR FOR 1974 ***** BASE YEAR 1974

MTH DAY	JANUARY YR /BASE DAY	DAY	FEBRUARY YR /BASE DAY	DAY	MARCH YR /BASE DAY	DAY	APRIL YR /BASE DAY	DAY	MAY YR /BASE DAY	DAY	JUNE YR /BASE DAY	DAY	JULY YR /BASE DAY	DAY	AUGUST YR /BASE DAY	DAY	SEPTEMBER YR /BASE DAY	DAY	OCTOBER YR /BASE DAY	DAY	NOVEMBER YR /BASE DAY	DAY	DECEMBER YR /BASE DAY	DAY	MTH DAY
1	1- 1		32- 32		60- 60		91- 91		121- 121		153- 153		183- 183		214- 214		245- 245		275- 275		306- 306		336- 336		1
2	2- 2		33- 33		61- 61		92- 92		122- 122		154- 154		184- 184		215- 215		246- 246		276- 276		307- 307		337- 337		2
3	3- 3		34- 34		62- 62		93- 93		123- 123		155- 155		185- 185		216- 216		247- 247		277- 277		308- 308		338- 338		3
4	4- 4		35- 35		63- 63		94- 94		124- 124		156- 156		186- 186		217- 217		248- 248		278- 278		309- 309		339- 339		4
5	5- 5		36- 36		64- 64		95- 95		125- 125		157- 157		187- 187		218- 218		249- 249		279- 279		310- 310		340- 340		5
6	6- 6		37- 37		65- 65		96- 96		126- 126		158- 158		188- 188		219- 219		250- 250		280- 280		311- 311		341- 341		6
7	7- 7		38- 38		66- 66		97- 97		127- 127		159- 159		189- 189		220- 220		251- 251		281- 281		312- 312		342- 342		7
8	8- 8		39- 39		67- 67		98- 98		128- 128		160- 160		190- 190		221- 221		252- 252		282- 282		313- 313		343- 343		8
9	9- 9		40- 40		68- 68		99- 99		129- 129		161- 161		191- 191		222- 222		253- 253		283- 283		314- 314		344- 344		9
10	10- 10		41- 41		69- 69		100- 100		130- 130		162- 162		192- 192		223- 223		254- 254		284- 284		315- 315		345- 345		10
11	11- 11		42- 42		70- 70		101- 101		131- 131		163- 163		193- 193		224- 224		255- 255		285- 285		316- 316		346- 346		11
12	12- 12		43- 43		71- 71		102- 102		132- 132		164- 164		194- 194		225- 225		256- 256		286- 286		317- 317		347- 347		12
13	13- 13		44- 44		72- 72		103- 103		133- 133		165- 165		195- 195		226- 226		257- 257		287- 287		318- 318		348- 348		13
14	14- 14		45- 45		73- 73		104- 104		134- 134		166- 166		196- 196		227- 227		258- 258		288- 288		319- 319		349- 349		14
15	15- 15		46- 46		74- 74		105- 105		135- 135		167- 167		197- 197		228- 228		259- 259		289- 289		320- 320		350- 350		15
16	16- 16		47- 47		75- 75		106- 106		136- 136		168- 168		198- 198		229- 229		260- 260		290- 290		321- 321		351- 351		16
17	17- 17		48- 48		76- 76		107- 107		137- 137		169- 169		199- 199		230- 230		261- 261		291- 291		322- 322		352- 352		17
18	18- 18		49- 49		77- 77		108- 108		138- 138		170- 170		200- 200		231- 231		262- 262		292- 292		323- 323		353- 353		18
19	19- 19		50- 50		78- 78		109- 109		139- 139		171- 171		201- 201		232- 232		263- 263		293- 293		324- 324		354- 354		19
20	20- 20		51- 51		79- 79		110- 110		140- 140		172- 172		202- 202		233- 233		264- 264		294- 294		325- 325		355- 355		20
21	21- 21		52- 52		80- 80		111- 111		141- 141		173- 173		203- 203		234- 234		265- 265		295- 295		326- 326		356- 356		21
22	22- 22		53- 53		81- 81		112- 112		142- 142		174- 174		204- 204		235- 235		266- 266		296- 296		327- 327		357- 357		22
23	23- 23		54- 54		82- 82		113- 113		143- 143		175- 175		205- 205		236- 236		267- 267		297- 297		328- 328		358- 358		23
24	24- 24		55- 55		83- 83		114- 114		144- 144		176- 176		206- 206		237- 237		268- 268		298- 298		329- 329		359- 359		24
25	25- 25		56- 56		84- 84		115- 115		145- 145		177- 177		207- 207		238- 238		269- 269		299- 299		330- 330		360- 360		25
26	26- 26		57- 57		85- 85		116- 116		146- 146		178- 178		208- 208		239- 239		270- 270		300- 300		331- 331		361- 361		26
27	27- 27		58- 58		86- 86		117- 117		147- 147		179- 179		209- 209		240- 240		271- 271		301- 301		332- 332		362- 362		27
28	28- 28		59- 59		87- 87		118- 118		148- 148		180- 180		210- 210		241- 241		272- 272		302- 302		333- 333		363- 363		28
29	29- 29		60- 60		88- 88		119- 119		149- 149		181- 181		211- 211		242- 242		273- 273		303- 303		334- 334		364- 364		29
30	30- 30		0- 0		89- 89		120- 120		150- 150		182- 182		212- 212		243- 243		274- 274		304- 304		335- 335		365- 365		30
31	31- 31		0- 0		90- 90		121- 121		151- 151		0- 0		213- 213		244- 244		0- 0		305- 305		0- 0		366- 366		31

***** JULIAN CALENDAR FOR 1973 ***** BASE YEAR 1973

MTH DAY	JANUARY YR /BASE DAY	DAY	FEBRUARY YR /BASE DAY	DAY	MARCH YR /BASE DAY	DAY	APRIL YR /BASE DAY	DAY	MAY YR /BASE DAY	DAY	JUNE YR /BASE DAY	DAY	JULY YR /BASE DAY	DAY	AUGUST YR /BASE DAY	DAY	SEPTEMBER YR /BASE DAY	DAY	OCTOBER YR /BASE DAY	DAY	NOVEMBER YR /BASE DAY	DAY	DECEMBER YR /BASE DAY	DAY	MTH DAY
1	1- 367		32- 398		60- 426		91- 457		121- 487		152- 518		182- 548		213- 579		244- 610		274- 640		305- 671		335- 701		1
2	2- 368		33- 399		61- 427		92- 458		122- 488		153- 519		183- 549		214- 580		245- 611		275- 641		306- 672		336- 702		2
3	3- 369		34- 400		62- 428		93- 459		123- 489		154- 520		184- 550		215- 581		246- 612		276- 642		307- 673		337- 703		3
4	4- 370		35- 401		63- 429		94- 460		124- 490		155- 521		185- 551		216- 582		247- 613		277- 643		308- 674		338- 704		4
5	5- 371		36- 402		64- 430		95- 461		125- 491		156- 522		186- 552		217- 583		248- 614		278- 644		309- 675		339- 705		5
6	6- 372		37- 403		65- 431		96- 462		126- 492		157- 523		187- 553		218- 584		249- 615		279- 645		310- 676		340- 706		6
7	7- 373		38- 404		66- 432		97- 463		127- 493		158- 524		188- 554		219- 585		250- 616		280- 646		311- 677		341- 707		7
8	8- 374		39- 405		67- 433		98- 464		128- 494		159- 525		189- 555		220- 586		251- 617		281- 647		312- 678		342- 708		8
9	9- 375		40- 406		68- 434		99- 465		129- 495		160- 526		190- 556		221- 587		252- 618		282- 648		313- 679		343- 709		9
10	10- 376		41- 407		69- 435		100- 466		130- 496		161- 527		191- 557		222- 588		253- 619		283- 649		314- 680		344- 710		10
11	11- 377		42- 408		70- 436		101- 467		131- 497		162- 528		192- 558		223- 589		254- 620		284- 650		315- 681		345- 711		11
12	12- 378		43- 409		71- 437		102- 468		132- 498		163- 529		193- 559		224- 590		255- 621		285- 651		316- 682		346- 712		12
13	13- 379		44- 410		72- 438		103- 469		133- 499		164- 530		194- 560		225- 591		256- 622		286- 652		317- 683		347- 713		13
14	14- 380		45- 411		73- 439		104- 470		134- 500		165- 531		195- 561		226- 592		257- 623		287- 653		318- 684		348- 714		14
15	15- 381		46- 412		74- 440		105- 471		135- 501		166- 532		196- 562		227- 593		258- 624		288- 654		319- 685		349- 715		15
16	16- 382		47- 413		75- 441		106- 472		136- 502		167- 533		197- 563		228- 594		259- 625		289- 655		320- 686		350- 716		16
17	17- 383		48- 414		76- 442		107- 473		137- 503		168- 534		198- 564		229- 595		260- 626		290- 656		321- 687		351- 717		17
18	18- 384		49- 415		77- 443		108- 474		138- 504		169- 535		199- 565		230- 596		261- 627		291- 657		322- 688		352- 718		18
19	19- 385		50- 416		78- 444		109- 475		139- 505		170- 536		200- 566		231- 597		262- 628		292- 658		323- 689		353- 719		19
20	20- 386		51- 417		79- 445		110- 476		140- 506		171- 537		201- 567		232- 598		263- 629		293- 659		324- 690		354- 720		20
21	21- 387		52- 418		80- 446		111- 477		141- 507		172- 538		202- 568		233- 599		264- 630		294- 660		325- 691		355- 721		21
22	22- 388		53- 419		81- 447		112- 478		142- 508		173- 539		203- 569		234- 600		265- 631		295- 661		326- 692		356- 722		22
23	23- 389		54- 420		82- 448		113- 479		143- 509		174- 540		204- 570		235- 601		266- 632		296- 662		327- 693		357- 723		23
24	24- 390		55- 421		83- 449		114- 480		144- 510		175- 541		205- 571		236- 602		267- 633		297- 663		328- 694		358- 724		24
25	25- 391		56- 422		84- 450		115- 481		145- 511		176- 542		206- 572		237- 603		268- 634		298- 664		329- 695		359- 725		25
26	26- 392		57- 423		85- 451		116- 482		146- 512		177- 543		207- 573		238- 604		269- 635		299- 665		330- 696		360- 726		26
27	27- 393		58- 424		86- 452		117- 483		147- 513		178- 544		208- 574		239- 605		270- 636		300- 666		331- 697		361- 727		27
28	28- 394		59- 425		87- 453		118- 484		148- 514		179- 545		209- 575		240- 606		271- 637		301- 667		332- 698		362- 728		28
29	29- 395		0- 0		88- 454		119- 485		149- 515		180- 546		210- 576		241- 607		272- 638		302- 668		333- 699		363- 729		29
30	30- 396		0- 0		89- 455		120- 486		150- 516		181- 547		211- 577		242- 608		273- 639		303- 669		334- 700		364- 730		30
31	31- 397		0- 0		90- 456		0- 0		151- 517		0- 0		212- 578		243- 609		0- 0		304- 670		0- 0		365- 731		31

********** JULIAN CALENDAR FOR 1974 ********** BASE YEAR 1972

MTH DAY	JANUARY YR /BASE DAY DAY	FEBRUARY YR /BASE DAY DAY	MARCH YR /BASE DAY DAY	APRIL YR /BASE DAY DAY	MAY YR /BASE DAY DAY	JUNE YR /BASE DAY DAY	JULY YR /BASE DAY DAY	AUGUST YR /BASE DAY DAY	SEPTEMBER YR /BASE DAY DAY	OCTOBER YR /BASE DAY DAY	NOVEMBER YR /BASE DAY DAY	DECEMBER YR /BASE DAY DAY	MTH DAY
1	1- 732	32- 763	60- 791	91- 822	121- 852	152- 883	182- 913	213- 944	244- 975	274-1005	305-1036	335-1066	1
2	2- 733	33- 764	61- 792	92- 823	122- 853	153- 884	183- 914	214- 945	245- 976	275-1006	306-1037	336-1067	2
3	3- 734	34- 765	62- 793	93- 824	123- 854	154- 885	184- 915	215- 946	246- 977	276-1007	307-1038	337-1068	3
4	4- 735	35- 766	63- 794	94- 825	124- 855	155- 886	185- 916	216- 947	247- 978	277-1008	308-1039	338-1069	4
5	5- 736	36- 767	64- 795	95- 826	125- 856	156- 887	186- 917	217- 948	248- 979	278-1009	309-1040	339-1070	5
6	6- 737	37- 768	65- 796	96- 827	126- 857	157- 888	187- 918	218- 949	249- 980	279-1010	310-1041	340-1071	6
7	7- 738	38- 769	66- 797	97- 828	127- 858	158- 889	188- 919	219- 950	250- 981	280-1011	311-1042	341-1072	7
8	8- 739	39- 770	67- 798	98- 829	128- 859	159- 890	189- 920	220- 951	251- 982	281-1012	312-1043	342-1073	8
9	9- 740	40- 771	68- 799	99- 830	129- 860	160- 891	190- 921	221- 952	252- 983	282-1013	313-1044	343-1074	9
10	10- 741	41- 772	69- 800	100- 831	130- 861	161- 892	191- 922	222- 953	253- 984	283-1014	314-1045	344-1075	10
11	11- 742	42- 773	70- 801	101- 832	131- 862	162- 893	192- 923	223- 954	254- 985	284-1015	315-1046	345-1076	11
12	12- 743	43- 774	71- 802	102- 833	132- 863	163- 894	193- 924	224- 955	255- 986	285-1016	316-1047	346-1077	12
13	13- 744	44- 775	72- 803	103- 834	133- 864	164- 895	194- 925	225- 956	256- 987	286-1017	317-1048	347-1078	13
14	14- 745	45- 776	73- 804	104- 835	134- 865	165- 896	195- 926	226- 957	257- 988	287-1018	318-1049	348-1079	14
15	15- 746	46- 777	74- 805	105- 836	135- 866	166- 897	196- 927	227- 958	258- 989	288-1019	319-1050	349-1080	15
16	16- 747	47- 778	75- 806	106- 837	136- 867	167- 898	197- 928	228- 959	259- 990	289-1020	320-1051	350-1081	16
17	17- 748	48- 779	76- 807	107- 838	137- 868	168- 899	198- 929	229- 960	260- 991	290-1021	321-1052	351-1082	17
18	18- 749	49- 780	77- 808	108- 839	138- 869	169- 900	199- 930	230- 961	261- 992	291-1022	322-1053	352-1083	18
19	19- 750	50- 781	78- 809	109- 840	139- 870	170- 901	200- 931	231- 962	262- 993	292-1023	323-1054	353-1084	19
20	20- 751	51- 782	79- 810	110- 841	140- 871	171- 902	201- 932	232- 963	263- 994	293-1024	324-1055	354-1085	20
21	21- 752	52- 783	80- 811	111- 842	141- 872	172- 903	202- 933	233- 964	264- 995	294-1025	325-1056	355-1086	21
22	22- 753	53- 784	81- 812	112- 843	142- 873	173- 904	203- 934	234- 965	265- 996	295-1026	326-1057	356-1087	22
23	23- 754	54- 785	82- 813	113- 844	143- 874	174- 905	204- 935	235- 966	266- 997	296-1027	327-1058	357-1088	23
24	24- 755	55- 786	83- 814	114- 845	144- 875	175- 906	205- 936	236- 967	267- 998	297-1028	328-1059	358-1089	24
25	25- 756	56- 787	84- 815	115- 846	145- 876	176- 907	206- 937	237- 968	268- 999	298-1029	329-1060	359-1090	25
26	26- 757	57- 788	85- 816	116- 847	146- 877	177- 908	207- 938	238- 969	269-1000	299-1030	330-1061	360-1091	26
27	27- 758	58- 789	86- 817	117- 848	147- 878	178- 909	208- 939	239- 970	270-1001	300-1031	331-1062	361-1092	27
28	28- 759	59- 790	87- 818	118- 849	148- 879	179- 910	209- 940	240- 971	271-1002	301-1032	332-1063	362-1093	28
29	29- 760	0- 0	88- 819	119- 850	149- 880	180- 911	210- 941	241- 972	272-1003	302-1033	333-1064	363-1094	29
30	30- 761	0- 0	89- 820	120- 851	150- 881	181- 912	211- 942	242- 973	273-1004	303-1034	334-1065	364-1095	30
31	31- 762	0- 0	90- 821	0- 0	151- 882	0- 0	212- 943	243- 974	0- 0	304-1035	0- 0	365-1096	31

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MTH DAY	JANUARY YR /BASE DAY DAY	FEBRUARY YR /BASE DAY DAY	MARCH YR /BASE DAY DAY	APRIL YR /BASE DAY DAY	MAY YR /BASE DAY DAY	JUNE YR /BASE DAY DAY	JULY YR /BASE DAY DAY	AUGUST YR /BASE DAY DAY	SEPTEMBER YR /BASE DAY DAY	OCTOBER YR /BASE DAY DAY	NOVEMBER YR /BASE DAY DAY	DECEMBER YR /BASE DAY DAY	MTH DAY
1	1-1097	32-1126	60-1156	91-1187	121-1217	152-1248	182-1278	213-1309	244-1340	274-1370	305-1401	335-1431	1
2	2-1098	33-1129	61-1157	92-1188	122-1218	153-1249	183-1279	214-1310	245-1341	275-1371	306-1402	336-1432	2
3	3-1099	34-1130	62-1158	93-1189	123-1219	154-1250	184-1280	215-1311	246-1342	276-1372	307-1403	337-1433	3
4	4-1100	35-1131	63-1159	94-1190	124-1220	155-1251	185-1281	216-1312	247-1343	277-1373	308-1404	338-1434	4
5	5-1101	36-1132	64-1160	95-1191	125-1221	156-1252	186-1282	217-1313	248-1344	278-1374	309-1405	339-1435	5
6	6-1102	37-1133	65-1161	96-1192	126-1222	157-1253	187-1283	218-1314	249-1345	279-1375	310-1406	340-1436	6
7	7-1103	38-1134	66-1162	97-1193	127-1223	158-1254	188-1284	219-1315	250-1346	280-1376	311-1407	341-1437	7
8	8-1104	39-1135	67-1163	98-1194	128-1224	159-1255	189-1285	220-1316	251-1347	281-1377	312-1408	342-1438	8
9	9-1105	40-1136	68-1164	99-1195	129-1225	160-1256	190-1286	221-1317	252-1348	282-1378	313-1409	343-1439	9
10	10-1106	41-1137	69-1165	100-1196	130-1226	161-1257	191-1287	222-1318	253-1349	283-1379	314-1410	344-1440	10
11	11-1107	42-1138	70-1166	101-1197	131-1227	162-1258	192-1288	223-1319	254-1350	284-1380	315-1411	345-1441	11
12	12-1108	43-1139	71-1167	102-1198	132-1228	163-1259	193-1289	224-1320	255-1351	285-1381	316-1412	346-1442	12
13	13-1109	44-1140	72-1168	103-1199	133-1229	164-1260	194-1290	225-1321	256-1352	286-1382	317-1413	347-1443	13
14	14-1110	45-1141	73-1169	104-1200	134-1230	165-1261	195-1291	226-1322	257-1353	287-1383	318-1414	348-1444	14
15	15-1111	46-1142	74-1170	105-1201	135-1231	166-1262	196-1292	227-1323	258-1354	288-1384	319-1415	349-1445	15
16	16-1112	47-1143	75-1171	106-1202	136-1232	167-1263	197-1293	228-1324	259-1355	289-1385	320-1416	350-1446	16
17	17-1113	48-1144	76-1172	107-1203	137-1233	168-1264	198-1294	229-1325	260-1356	290-1386	321-1417	351-1447	17
18	18-1114	49-1145	77-1173	108-1204	138-1234	169-1265	199-1295	230-1326	261-1357	291-1387	322-1418	352-1448	18
19	19-1115	50-1146	78-1174	109-1205	139-1235	170-1266	200-1296	231-1327	262-1358	292-1388	323-1419	353-1449	19
20	20-1116	51-1147	79-1175	110-1206	140-1236	171-1267	201-1297	232-1328	263-1359	293-1389	324-1420	354-1450	20
21	21-1117	52-1148	80-1176	111-1207	141-1237	172-1268	202-1298	233-1329	264-1360	294-1390	325-1421	355-1451	21
22	22-1118	53-1149	81-1177	112-1208	142-1238	173-1269	203-1299	234-1330	265-1361	295-1391	326-1422	356-1452	22
23	23-1119	54-1150	82-1178	113-1209	143-1239	174-1270	204-1300	235-1331	266-1362	296-1392	327-1423	357-1453	23
24	24-1120	55-1151	83-1179	114-1210	144-1240	175-1271	205-1301	236-1332	267-1363	297-1393	328-1424	358-1454	24
25	25-1121	56-1152	84-1180	115-1211	145-1241	176-1272	206-1302	237-1333	268-1364	298-1394	329-1425	359-1455	25
26	26-1122	57-1153	85-1181	116-1212	146-1242	177-1273	207-1303	238-1334	269-1365	299-1395	330-1426	360-1456	26
27	27-1123	58-1154	86-1182	117-1213	147-1243	178-1274	208-1304	239-1335	270-1366	300-1396	331-1427	361-1457	27
28	28-1124	59-1155	87-1183	118-1214	148-1244	179-1275	209-1305	240-1336	271-1367	301-1397	332-1428	362-1458	28
29	29-1125	0- 0	88-1184	119-1215	149-1245	180-1276	210-1306	241-1337	272-1368	302-1398	333-1429	363-1459	29
30	30-1126	0- 0	89-1185	120-1216	150-1246	181-1277	211-1307	242-1338	273-1369	303-1399	334-1430	364-1460	30
31	31-1127	0- 0	90-1186	0- 0	151-1247	0- 0	212-1308	243-1339	0- 0	304-1400	0- 0	365-1461	31

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1	1-1462	32-1493	61-1522	92-1553	122-1583	153-1614	183-1644	214-1675	245-1706	275-1736	306-1767	336-1797	1
2	2-1463	33-1494	62-1523	93-1554	123-1584	154-1615	184-1645	215-1676	246-1707	276-1737	307-1768	337-1798	2
3	3-1464	34-1495	63-1524	94-1555	124-1585	155-1616	185-1646	216-1677	247-1708	277-1738	308-1769	338-1799	3
4	4-1465	35-1496	64-1525	95-1556	125-1586	156-1617	186-1647	217-1678	248-1709	278-1739	309-1770	339-1800	4
5	5-1466	36-1497	65-1526	96-1557	126-1587	157-1618	187-1648	218-1679	249-1710	279-1740	310-1771	340-1801	5
6	6-1467	37-1498	66-1527	97-1558	127-1588	158-1619	188-1649	219-1680	250-1711	280-1741	311-1772	341-1802	6
7	7-1468	38-1499	67-1528	98-1559	128-1589	159-1620	189-1650	220-1681	251-1712	281-1742	312-1773	342-1803	7
8	8-1469	39-1500	68-1529	99-1560	129-1590	160-1621	190-1651	221-1682	252-1713	282-1743	313-1774	343-1804	8
9	9-1470	40-1501	69-1530	100-1561	130-1591	161-1622	191-1652	222-1683	253-1714	283-1744	314-1775	344-1805	9
10	10-1471	41-1502	70-1531	101-1562	131-1592	162-1623	192-1653	223-1684	254-1715	284-1745	315-1776	345-1806	10
11	11-1472	42-1503	71-1532	102-1563	132-1593	163-1624	193-1654	224-1685	255-1716	285-1746	316-1777	346-1807	11
12	12-1473	43-1504	72-1533	103-1564	133-1594	164-1625	194-1655	225-1686	256-1717	286-1747	317-1778	347-1808	12
13	13-1474	44-1505	73-1534	104-1565	134-1595	165-1626	195-1656	226-1687	257-1718	287-1748	318-1779	348-1809	13
14	14-1475	45-1506	74-1535	105-1566	135-1596	166-1627	196-1657	227-1688	258-1719	288-1749	319-1780	349-1810	14
15	15-1476	46-1507	75-1536	106-1567	136-1597	167-1628	197-1658	228-1689	259-1720	289-1750	320-1781	350-1811	15
16	16-1477	47-1508	76-1537	107-1568	137-1598	168-1629	198-1659	229-1690	260-1721	290-1751	321-1782	351-1812	16
17	17-1478	48-1509	77-1538	108-1569	138-1599	169-1630	199-1660	230-1691	261-1722	291-1752	322-1783	352-1813	17
18	18-1479	49-1510	78-1539	109-1570	139-1600	170-1631	200-1661	231-1692	262-1723	292-1753	323-1784	353-1814	18
19	19-1480	50-1511	79-1540	110-1571	140-1601	171-1632	201-1662	232-1693	263-1724	293-1754	324-1785	354-1815	19
20	20-1481	51-1512	80-1541	111-1572	141-1602	172-1633	202-1663	233-1694	264-1725	294-1755	325-1786	355-1816	20
21	21-1482	52-1513	81-1542	112-1573	142-1603	173-1634	203-1664	234-1695	265-1726	295-1756	326-1787	356-1817	21
22	22-1483	53-1514	82-1543	113-1574	143-1604	174-1635	204-1665	235-1696	266-1727	296-1757	327-1788	357-1818	22
23	23-1484	54-1515	83-1544	114-1575	144-1605	175-1636	205-1666	236-1697	267-1728	297-1758	328-1789	358-1819	23
24	24-1485	55-1516	84-1545	115-1576	145-1606	176-1637	206-1667	237-1698	268-1729	298-1759	329-1790	359-1820	24
25	25-1486	56-1517	85-1546	116-1577	146-1607	177-1638	207-1668	238-1699	269-1730	299-1760	330-1791	360-1821	25
26	26-1487	57-1518	86-1547	117-1578	147-1608	178-1639	208-1669	239-1700	270-1731	300-1761	331-1792	361-1822	26
27	27-1488	58-1519	87-1548	118-1579	148-1609	179-1640	209-1670	240-1701	271-1732	301-1762	332-1793	362-1823	27
28	28-1489	59-1520	88-1549	119-1580	149-1610	180-1641	210-1671	241-1702	272-1733	302-1763	333-1794	363-1824	28
29	29-1490	60-1521	89-1550	120-1581	150-1611	181-1642	211-1672	242-1703	273-1734	303-1764	334-1795	364-1825	29
30	30-1491	0- 0	90-1551	121-1582	151-1612	182-1643	212-1673	243-1704	274-1735	304-1765	335-1796	365-1826	30
31	31-1492	0- 0	91-1552	0- 0	152-1613	0- 0	213-1674	244-1705	0- 0	305-1766	0- 0	366-1827	31

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1	1-1828	32-1859	60-1887	91-1918	121-1948	152-1979	182-2009	213-2040	244-2071	274-2101	305-2132	335-2162	1
2	2-1829	33-1860	61-1888	92-1919	122-1949	153-1980	183-2010	214-2041	245-2072	275-2102	306-2133	336-2163	2
3	3-1830	34-1861	62-1889	93-1920	123-1950	154-1981	184-2011	215-2042	246-2073	276-2103	307-2134	337-2164	3
4	4-1831	35-1862	63-1890	94-1921	124-1951	155-1982	185-2012	216-2043	247-2074	277-2104	308-2135	338-2165	4
5	5-1832	36-1863	64-1891	95-1922	125-1952	156-1983	186-2013	217-2044	248-2075	278-2105	309-2136	339-2166	5
6	6-1833	37-1864	65-1892	96-1923	126-1953	157-1984	187-2014	218-2045	249-2076	279-2106	310-2137	340-2167	6
7	7-1834	38-1865	66-1893	97-1924	127-1954	158-1985	188-2015	219-2046	250-2077	280-2107	311-2138	341-2168	7
8	8-1835	39-1866	67-1894	98-1925	128-1955	159-1986	189-2016	220-2047	251-2078	281-2108	312-2139	342-2169	8
9	9-1836	40-1867	68-1895	99-1926	129-1956	160-1987	190-2017	221-2048	252-2079	282-2109	313-2140	343-2170	9
10	10-1837	41-1868	69-1896	100-1927	130-1957	161-1988	191-2018	222-2049	253-2080	283-2110	314-2141	344-2171	10
11	11-1838	42-1869	70-1897	101-1928	131-1958	162-1989	192-2019	223-2050	254-2081	284-2111	315-2142	345-2172	11
12	12-1839	43-1870	71-1898	102-1929	132-1959	163-1990	193-2020	224-2051	255-2082	285-2112	316-2143	346-2173	12
13	13-1840	44-1871	72-1899	103-1930	133-1960	164-1991	194-2021	225-2052	256-2083	286-2113	317-2144	347-2174	13
14	14-1841	45-1872	73-1900	104-1931	134-1961	165-1992	195-2022	226-2053	257-2084	287-2114	318-2145	348-2175	14
15	15-1842	46-1873	74-1901	105-1932	135-1962	166-1993	196-2023	227-2054	258-2085	288-2115	319-2146	349-2176	15
16	16-1843	47-1874	75-1902	106-1933	136-1963	167-1994	197-2024	228-2055	259-2086	289-2116	320-2147	350-2177	16
17	17-1844	48-1875	76-1903	107-1934	137-1964	168-1995	198-2025	229-2056	260-2087	290-2117	321-2148	351-2178	17
18	18-1845	49-1876	77-1904	108-1935	138-1965	169-1996	199-2026	230-2057	261-2088	291-2118	322-2149	352-2179	18
19	19-1846	50-1877	78-1905	109-1936	139-1966	170-1997	200-2027	231-2058	262-2089	292-2119	323-2150	353-2180	19
20	20-1847	51-1878	79-1906	110-1937	140-1967	171-1998	201-2028	232-2059	263-2090	293-2120	324-2151	354-2181	20
21	21-1848	52-1879	80-1907	111-1938	141-1968	172-1999	202-2029	233-2060	264-2091	294-2121	325-2152	355-2182	21
22	22-1849	53-1880	81-1908	112-1939	142-1969	173-2000	203-2030	234-2061	265-2092	295-2122	326-2153	356-2183	22
23	23-1850	54-1881	82-1909	113-1940	143-1970	174-2001	204-2031	235-2062	266-2093	296-2123	327-2154	357-2184	23
24	24-1851	55-1882	83-1910	114-1941	144-1971	175-2002	205-2032	236-2063	267-2094	297-2124	328-2155	358-2185	24
25	25-1852	56-1883	84-1911	115-1942	145-1972	176-2003	206-2033	237-2064	268-2095	298-2125	329-2156	359-2186	25
26	26-1853	57-1884	85-1912	116-1943	146-1973	177-2004	207-2034	238-2065	269-2096	299-2126	330-2157	360-2187	26
27	27-1854	58-1885	86-1913	117-1944	147-1974	178-2005	208-2035	239-2066	270-2097	300-2127	331-2158	361-2188	27
28	28-1855	59-1886	87-1914	118-1945	148-1975	179-2006	209-2036	240-2067	271-2098	301-2128	332-2159	362-2189	28
29	29-1856	0- 0	88-1915	119-1946	149-1976	180-2007	210-2037	241-2068	272-2099	302-2129	333-2160	363-2190	29
30	30-1857	0- 0	89-1916	120-1947	150-1977	181-2008	211-2038	242-2069	273-2100	303-2130	334-2161	364-2191	30
31	31-1858	0- 0	90-1917	0- 0	151-1978	0- 0	212-2039	243-2070	0- 0	304-2131	0- 0	365-2192	31

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1	1-2193	32-2224	60-2252	91-2283	121-2313	152-2344	182-2374	213-2405	244-2436	274-2466	305-2497	335-2527	1
2	2-2194	33-2225	61-2253	92-2284	122-2314	153-2345	183-2375	214-2406	245-2437	275-2467	306-2498	336-2528	2
3	3-2195	34-2226	62-2254	93-2285	123-2315	154-2346	184-2376	215-2407	246-2438	276-2468	307-2499	337-2529	3
4	4-2196	35-2227	63-2255	94-2286	124-2316	155-2347	185-2377	216-2408	247-2439	277-2469	308-2500	338-2530	4
5	5-2197	36-2228	64-2256	95-2287	125-2317	156-2348	186-2378	217-2409	248-2440	278-2470	309-2501	339-2531	5
6	6-2198	37-2229	65-2257	96-2288	126-2318	157-2349	187-2379	218-2410	249-2441	279-2471	310-2502	340-2532	6
7	7-2199	38-2230	66-2258	97-2289	127-2319	158-2350	188-2380	219-2411	250-2442	280-2472	311-2503	341-2533	7
8	8-2200	39-2231	67-2259	98-2290	128-2320	159-2351	189-2381	220-2412	251-2443	281-2473	312-2504	342-2534	8
9	9-2201	40-2232	68-2260	99-2291	129-2321	160-2352	190-2382	221-2413	252-2444	282-2474	313-2505	343-2535	9
10	10-2202	41-2233	69-2261	100-2292	130-2322	161-2353	191-2383	222-2414	253-2445	283-2475	314-2506	344-2536	10
11	11-2203	42-2234	70-2262	101-2293	131-2323	162-2354	192-2384	223-2415	254-2446	284-2476	315-2507	345-2537	11
12	12-2204	43-2235	71-2263	102-2294	132-2324	163-2355	193-2385	224-2416	255-2447	285-2477	316-2508	346-2538	12
13	13-2205	44-2236	72-2264	103-2295	133-2325	164-2356	194-2386	225-2417	256-2448	286-2478	317-2509	347-2539	13
14	14-2206	45-2237	73-2265	104-2296	134-2326	165-2357	195-2387	226-2418	257-2449	287-2479	318-2510	348-2540	14
15	15-2207	46-2238	74-2266	105-2297	135-2327	166-2358	196-2388	227-2419	258-2450	288-2480	319-2511	349-2541	15
16	16-2208	47-2239	75-2267	106-2298	136-2328	167-2359	197-2389	228-2420	259-2451	289-2481	320-2512	350-2542	16
17	17-2209	48-2240	76-2268	107-2299	137-2329	168-2360	198-2390	229-2421	260-2452	290-2482	321-2513	351-2543	17
18	18-2210	49-2241	77-2269	108-2300	138-2330	169-2361	199-2391	230-2422	261-2453	291-2483	322-2514	352-2544	18
19	19-2211	50-2242	78-2270	109-2301	139-2331	170-2362	200-2392	231-2423	262-2454	292-2484	323-2515	353-2545	19
20	20-2212	51-2243	79-2271	110-2302	140-2332	171-2363	201-2393	232-2424	263-2455	293-2485	324-2516	354-2546	20
21	21-2213	52-2244	80-2272	111-2303	141-2333	172-2364	202-2394	233-2425	264-2456	294-2486	325-2517	355-2547	21
22	22-2214	53-2245	81-2273	112-2304	142-2334	173-2365	203-2395	234-2426	265-2457	295-2487	326-2518	356-2548	22
23	23-2215	54-2246	82-2274	113-2305	143-2335	174-2366	204-2396	235-2427	266-2458	296-2488	327-2519	357-2549	23
24	24-2216	55-2247	83-2275	114-2306	144-2336	175-2367	205-2397	236-2428	267-2459	297-2489	328-2520	358-2550	24
25	25-2217	56-2248	84-2276	115-2307	145-2337	176-2368	206-2398	237-2429	268-2460	298-2490	329-2521	359-2551	25
26	26-2218	57-2249	85-2277	116-2308	146-2338	177-2369	207-2399	238-2430	269-2461	299-2491	330-2522	360-2552	26
27	27-2219	58-2250	86-2278	117-2309	147-2339	178-2370	208-2400	239-2431	270-2462	300-2492	331-2523	361-2553	27
28	28-2220	59-2251	87-2279	118-2310	148-2340	179-2371	209-2401	240-2432	271-2463	301-2493	332-2524	362-2554	28
29	29-2221	0- 0	88-2280	119-2311	149-2341	180-2372	210-2402	241-2433	272-2464	302-2494	333-2525	363-2555	29
30	30-2222	0- 0	89-2281	120-2312	150-2342	181-2373	211-2403	242-2434	273-2465	303-2495	334-2526	364-2556	30
31	31-2223	0- 0	90-2282	0- 0	151-2343	0- 0	212-2404	243-2435	0- 0	304-2496	0- 0	365-2557	31

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MTH DAY	JANUARY YR /BASE DAY DAY	FEBRUARY YR /BASE DAY DAY	MARCH YR /BASE DAY DAY	APRIL YR /BASE DAY DAY	MAY YR /BASE DAY DAY	JUNE YR /BASE DAY DAY	JULY YR /BASE DAY DAY	AUGUST YR /BASE DAY DAY	SEPTEMBER YR /BASE DAY DAY	OCTOBER YR /BASE DAY DAY	NOVEMBER YR /BASE DAY DAY	DECEMBER YR /BASE DAY DAY	MTH DAY
1	1-2558	32-2589	60-2617	91-2648	121-2678	152-2709	182-2739	213-2770	244-2801	274-2831	305-2862	335-2892	1
2	2-2559	33-2590	61-2618	92-2649	122-2679	153-2710	183-2740	214-2771	245-2802	275-2832	306-2863	336-2893	2
3	3-2560	34-2591	62-2619	93-2650	123-2680	154-2711	184-2741	215-2772	246-2803	276-2833	307-2864	337-2894	3
4	4-2561	35-2592	63-2620	94-2651	124-2681	155-2712	185-2742	216-2773	247-2804	277-2834	308-2865	338-2895	4
5	5-2562	36-2593	64-2621	95-2652	125-2682	156-2713	186-2743	217-2774	248-2805	278-2835	309-2866	339-2896	5
6	6-2563	37-2594	65-2622	96-2653	126-2683	157-2714	187-2744	218-2775	249-2806	279-2836	310-2867	340-2897	6
7	7-2564	38-2595	66-2623	97-2654	127-2684	158-2715	188-2745	219-2776	250-2807	280-2837	311-2868	341-2898	7
8	8-2565	39-2596	67-2624	98-2655	128-2685	159-2716	189-2746	220-2777	251-2808	281-2838	312-2869	342-2899	8
9	9-2566	40-2597	68-2625	99-2656	129-2686	160-2717	190-2747	221-2778	252-2809	282-2839	313-2870	343-2900	9
10	10-2567	41-2598	69-2626	100-2657	130-2687	161-2718	191-2748	222-2779	253-2810	283-2840	314-2871	344-2901	10
11	11-2568	42-2599	70-2627	101-2658	131-2688	162-2719	192-2749	223-2780	254-2811	284-2841	315-2872	345-2902	11
12	12-2569	43-2600	71-2628	102-2659	132-2689	163-2720	193-2750	224-2781	255-2812	285-2842	316-2873	346-2903	12
13	13-2570	44-2601	72-2629	103-2660	133-2690	164-2721	194-2751	225-2782	256-2813	286-2843	317-2874	347-2904	13
14	14-2571	45-2602	73-2630	104-2661	134-2691	165-2722	195-2752	226-2783	257-2814	287-2844	318-2875	348-2905	14
15	15-2572	46-2603	74-2631	105-2662	135-2692	166-2723	196-2753	227-2784	258-2815	288-2845	319-2876	349-2906	15
16	16-2573	47-2604	75-2632	106-2663	136-2693	167-2724	197-2754	228-2785	259-2816	289-2846	320-2877	350-2907	16
17	17-2574	48-2605	76-2633	107-2664	137-2694	168-2725	198-2755	229-2786	260-2817	290-2847	321-2878	351-2908	17
18	18-2575	49-2606	77-2634	108-2665	138-2695	169-2726	199-2756	230-2787	261-2818	291-2848	322-2879	352-2909	18
19	19-2576	50-2607	78-2635	109-2666	139-2696	170-2727	200-2757	231-2788	262-2819	292-2849	323-2880	353-2910	19
20	20-2577	51-2608	79-2636	110-2667	140-2697	171-2728	201-2758	232-2789	263-2820	293-2850	324-2881	354-2911	20
21	21-2578	52-2609	80-2637	111-2668	141-2698	172-2729	202-2759	233-2790	264-2821	294-2851	325-2882	355-2912	21
22	22-2579	53-2610	81-2638	112-2669	142-2699	173-2730	203-2760	234-2791	265-2822	295-2852	326-2883	356-2913	22
23	23-2580	54-2611	82-2639	113-2670	143-2700	174-2731	204-2761	235-2792	266-2823	296-2853	327-2884	357-2914	23
24	24-2581	55-2612	83-2640	114-2671	144-2701	175-2732	205-2762	236-2793	267-2824	297-2854	328-2885	358-2915	24
25	25-2582	56-2613	84-2641	115-2672	145-2702	176-2733	206-2763	237-2794	268-2825	298-2855	329-2886	359-2916	25
26	26-2583	57-2614	85-2642	116-2673	146-2703	177-2734	207-2764	238-2795	269-2826	299-2856	330-2887	360-2917	26
27	27-2584	58-2615	86-2643	117-2674	147-2704	178-2735	208-2765	239-2796	270-2827	300-2857	331-2888	361-2918	27
28	28-2585	59-2616	87-2644	118-2675	148-2705	179-2736	209-2766	240-2797	271-2828	301-2858	332-2889	362-2919	28
29	29-2586	0- 0	88-2645	119-2676	149-2706	180-2737	210-2767	241-2798	272-2829	302-2859	333-2890	363-2920	29
30	30-2587	0- 0	89-2646	120-2677	150-2707	181-2738	211-2768	242-2799	273-2830	303-2860	334-2891	364-2921	30
31	31-2588	0- 0	90-2647	0- 0	151-2708	0- 0	212-2769	243-2800	0- 0	304-2861	0- 0	365-2922	31

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MTH DAY	JANUARY YR /BASE DAY DAY	FEBRUARY YR /BASE DAY DAY	MARCH YR /BASE DAY DAY	APRIL YR /BASE DAY DAY	MAY YR /BASE DAY DAY	JUNE YR /BASE DAY DAY	JULY YR /BASE DAY DAY	AUGUST YR /BASE DAY DAY	SEPTEMBER YR /BASE DAY DAY	OCTOBER YR /BASE DAY DAY	NOVEMBER YR /BASE DAY DAY	DECEMBER YR /BASE DAY DAY	MTH DAY
1	1-2923	32-2954	61-2983	92-3014	122-3044	153-3075	183-3105	214-3136	245-3167	275-3197	306-3228	336-3258	1
2	2-2924	33-2955	62-2984	93-3015	123-3045	154-3076	184-3106	215-3137	246-3168	276-3198	307-3229	337-3259	2
3	3-2925	34-2956	63-2985	94-3016	124-3046	155-3077	185-3107	216-3138	247-3169	277-3199	308-3230	338-3260	3
4	4-2926	35-2957	64-2986	95-3017	125-3047	156-3078	186-3108	217-3139	248-3170	278-3200	309-3231	339-3261	4
5	5-2927	36-2958	65-2987	96-3018	126-3048	157-3079	187-3109	218-3140	249-3171	279-3201	310-3232	340-3262	5
6	6-2928	37-2959	66-2988	97-3019	127-3049	158-3080	188-3110	219-3141	250-3172	280-3202	311-3233	341-3263	6
7	7-2929	38-2960	67-2989	98-3020	128-3050	159-3081	189-3111	220-3142	251-3173	281-3203	312-3234	342-3264	7
8	8-2930	39-2961	68-2990	99-3021	129-3051	160-3082	190-3112	221-3143	252-3174	282-3204	313-3235	343-3265	8
9	9-2931	40-2962	69-2991	100-3022	130-3052	161-3083	191-3113	222-3144	253-3175	283-3205	314-3236	344-3266	9
10	10-2932	41-2963	70-2992	101-3023	131-3053	162-3084	192-3114	223-3145	254-3176	284-3206	315-3237	345-3267	10
11	11-2933	42-2964	71-2993	102-3024	132-3054	163-3085	193-3115	224-3146	255-3177	285-3207	316-3238	346-3268	11
12	12-2934	43-2965	72-2994	103-3025	133-3055	164-3086	194-3116	225-3147	256-3178	286-3208	317-3239	347-3269	12
13	13-2935	44-2966	73-2995	104-3026	134-3056	165-3087	195-3117	226-3148	257-3179	287-3209	318-3240	348-3270	13
14	14-2936	45-2967	74-2996	105-3027	135-3057	166-3088	196-3118	227-3149	258-3180	288-3210	319-3241	349-3271	14
15	15-2937	46-2968	75-2997	106-3028	136-3058	167-3089	197-3119	228-3150	259-3181	289-3211	320-3242	350-3272	15
16	16-2938	47-2969	76-2998	107-3029	137-3059	168-3090	198-3120	229-3151	260-3182	290-3212	321-3243	351-3273	16
17	17-2939	48-2970	77-2999	108-3030	138-3060	169-3091	199-3121	230-3152	261-3183	291-3213	322-3244	352-3274	17
18	18-2940	49-2971	78-3000	109-3031	139-3061	170-3092	200-3122	231-3153	262-3184	292-3214	323-3245	353-3275	18
19	19-2941	50-2972	79-3001	110-3032	140-3062	171-3093	201-3123	232-3154	263-3185	293-3215	324-3246	354-3276	19
20	20-2942	51-2973	80-3002	111-3033	141-3063	172-3094	202-3124	233-3155	264-3186	294-3216	325-3247	355-3277	20
21	21-2943	52-2974	81-3003	112-3034	142-3064	173-3095	203-3125	234-3156	265-3187	295-3217	326-3248	356-3278	21
22	22-2944	53-2975	82-3004	113-3035	143-3065	174-3096	204-3126	235-3157	266-3188	296-3218	327-3249	357-3279	22
23	23-2945	54-2976	83-3005	114-3036	144-3066	175-3097	205-3127	236-3158	267-3189	297-3219	328-3250	358-3280	23
24	24-2946	55-2977	84-3006	115-3037	145-3067	176-3098	206-3128	237-3159	268-3190	298-3220	329-3251	359-3281	24
25	25-2947	56-2978	85-3007	116-3038	146-3068	177-3099	207-3129	238-3160	269-3191	299-3221	330-3252	360-3282	25
26	26-2948	57-2979	86-3008	117-3039	147-3069	178-3100	208-3130	239-3161	270-3192	300-3222	331-3253	361-3283	26
27	27-2949	58-2980	87-3009	118-3040	148-3070	179-3101	209-3131	240-3162	271-3193	301-3223	332-3254	362-3284	27
28	28-2950	59-2981	88-3010	119-3041	149-3071	180-3102	210-3132	241-3163	272-3194	302-3224	333-3255	363-3285	28
29	29-2951	60-2982	89-3011	120-3042	150-3072	181-3103	211-3133	242-3164	273-3195	303-3225	334-3256	364-3286	29
30	30-2952	0- 0	90-3012	121-3043	151-3073	182-3104	212-3134	243-3165	274-3196	304-3226	335-3257	365-3287	30
31	31-2953	0- 0	91-3013	0- 0	152-3074	0- 0	213-3135	244-3166	0- 0	305-3227	0- 0	366-3288	31

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1	1-3269	32-3320	60-3348	91-3379	121-3409	152-3440	182-3470	213-3501	244-3532	274-3562	305-3593	335-3623	1
2	2-3290	33-3321	61-3349	92-3380	122-3410	153-3441	183-3471	214-3502	245-3533	275-3563	306-3594	336-3624	2
3	3-3291	34-3322	62-3350	93-3381	123-3411	154-3442	184-3472	215-3503	246-3534	276-3564	307-3595	337-3625	3
4	4-3292	35-3323	63-3351	94-3382	124-3412	155-3443	185-3473	216-3504	247-3535	277-3565	308-3596	338-3626	4
5	5-3293	36-3324	64-3352	95-3383	125-3413	156-3444	186-3474	217-3505	248-3536	278-3566	309-3597	339-3627	5
6	6-3294	37-3325	65-3353	96-3384	126-3414	157-3445	187-3475	218-3506	249-3537	279-3567	310-3598	340-3628	6
7	7-3295	38-3326	66-3354	97-3385	127-3415	158-3446	188-3476	219-3507	250-3538	280-3568	311-3599	341-3629	7
8	8-3296	39-3327	67-3355	98-3386	128-3416	159-3447	189-3477	220-3508	251-3539	281-3569	312-3600	342-3630	8
9	9-3297	40-3328	68-3356	99-3387	129-3417	160-3448	190-3478	221-3509	252-3540	282-3570	313-3601	343-3631	9
10	10-3298	41-3329	69-3357	100-3388	130-3418	161-3449	191-3479	222-3510	253-3541	283-3571	314-3602	344-3632	10
11	11-3299	42-3330	70-3358	101-3389	131-3419	162-3450	192-3480	223-3511	254-3542	284-3572	315-3603	345-3633	11
12	12-3300	43-3331	71-3359	102-3390	132-3420	163-3451	193-3481	224-3512	255-3543	285-3573	316-3604	346-3634	12
13	13-3301	44-3332	72-3360	103-3391	133-3421	164-3452	194-3482	225-3513	256-3544	286-3574	317-3605	347-3635	13
14	14-3302	45-3333	73-3361	104-3392	134-3422	165-3453	195-3483	226-3514	257-3545	287-3575	318-3606	348-3636	14
15	15-3303	46-3334	74-3362	105-3393	135-3423	166-3454	196-3484	227-3515	258-3546	288-3576	319-3607	349-3637	15
16	16-3304	47-3335	75-3363	106-3394	136-3424	167-3455	197-3485	228-3516	259-3547	289-3577	320-3608	350-3638	16
17	17-3305	48-3336	76-3364	107-3395	137-3425	168-3456	198-3486	229-3517	260-3548	290-3578	321-3609	351-3639	17
18	18-3306	49-3337	77-3365	108-3396	138-3426	169-3457	199-3487	230-3518	261-3549	291-3579	322-3610	352-3640	18
19	19-3307	50-3338	78-3366	109-3397	139-3427	170-3458	200-3488	231-3519	262-3550	292-3580	323-3611	353-3641	19
20	20-3308	51-3339	79-3367	110-3398	140-3428	171-3459	201-3489	232-3520	263-3551	293-3581	324-3612	354-3642	20
21	21-3309	52-3340	80-3368	111-3399	141-3429	172-3460	202-3490	233-3521	264-3552	294-3582	325-3613	355-3643	21
22	22-3310	53-3341	81-3369	112-3400	142-3430	173-3461	203-3491	234-3522	265-3553	295-3583	326-3614	356-3644	22
23	23-3311	54-3342	82-3370	113-3401	143-3431	174-3462	204-3492	235-3523	266-3554	296-3584	327-3615	357-3645	23
24	24-3312	55-3343	83-3371	114-3402	144-3432	175-3463	205-3493	236-3524	267-3555	297-3585	328-3616	358-3646	24
25	25-3313	56-3344	84-3372	115-3403	145-3433	176-3464	206-3494	237-3525	268-3556	298-3586	329-3617	359-3647	25
26	26-3314	57-3345	85-3373	116-3404	146-3434	177-3465	207-3495	238-3526	269-3557	299-3587	330-3618	360-3648	26
27	27-3315	58-3346	86-3374	117-3405	147-3435	178-3466	208-3496	239-3527	270-3558	300-3588	331-3619	361-3649	27
28	28-3316	59-3347	87-3375	118-3406	148-3436	179-3467	209-3497	240-3528	271-3559	301-3589	332-3620	362-3650	28
29	29-3317	0- 0	88-3376	119-3407	149-3437	180-3468	210-3498	241-3529	272-3560	302-3590	333-3621	363-3651	29
30	30-3318	0- 0	89-3377	120-3408	150-3438	181-3469	211-3499	242-3530	273-3561	303-3591	334-3622	364-3652	30
31	31-3319	0- 0	90-3378	0- 0	151-3439	0- 0	212-3500	243-3531	0- 0	304-3592	0- 0	365-3653	31

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1	1-3652	32-3683	60-3713	91-3744	121-3774	152-3805	182-3835	213-3866	244-3897	274-3927	305-3958	335-3988	1
2	2-3653	33-3684	61-3714	92-3745	122-3775	153-3806	183-3836	214-3867	245-3898	275-3928	306-3959	336-3989	2
3	3-3654	34-3685	62-3715	93-3746	123-3776	154-3807	184-3837	215-3868	246-3899	276-3929	307-3960	337-3990	3
4	4-3655	35-3686	63-3716	94-3747	124-3777	155-3808	185-3838	216-3869	247-3900	277-3930	308-3961	338-3991	4
5	5-3656	36-3687	64-3717	95-3748	125-3778	156-3809	186-3839	217-3870	248-3901	278-3931	309-3962	339-3992	5
6	6-3657	37-3688	65-3718	96-3749	126-3779	157-3810	187-3840	218-3871	249-3902	279-3932	310-3963	340-3993	6
7	7-3658	38-3689	66-3719	97-3750	127-3780	158-3811	188-3841	219-3872	250-3903	280-3933	311-3964	341-3994	7
8	8-3659	39-3690	67-3720	98-3751	128-3781	159-3812	189-3842	220-3873	251-3904	281-3934	312-3965	342-3995	8
9	9-3660	40-3691	68-3721	99-3752	129-3782	160-3813	190-3843	221-3874	252-3905	282-3935	313-3966	343-3996	9
10	10-3661	41-3692	69-3722	100-3753	130-3783	161-3814	191-3844	222-3875	253-3906	283-3936	314-3967	344-3997	10
11	11-3662	42-3693	70-3723	101-3754	131-3784	162-3815	192-3845	223-3876	254-3907	284-3937	315-3968	345-3998	11
12	12-3663	43-3694	71-3724	102-3755	132-3785	163-3816	193-3846	224-3877	255-3908	285-3938	316-3969	346-3999	12
13	13-3664	44-3695	72-3725	103-3756	133-3786	164-3817	194-3847	225-3878	256-3909	286-3939	317-3970	347-4000	13
14	14-3665	45-3696	73-3726	104-3757	134-3787	165-3818	195-3848	226-3879	257-3910	287-3940	318-3971	348-4001	14
15	15-3666	46-3697	74-3727	105-3758	135-3788	166-3819	196-3849	227-3880	258-3911	288-3941	319-3972	349-4002	15
16	16-3667	47-3698	75-3728	106-3759	136-3789	167-3820	197-3850	228-3881	259-3912	289-3942	320-3973	350-4003	16
17	17-3668	48-3699	76-3729	107-3760	137-3790	168-3821	198-3851	229-3882	260-3913	290-3943	321-3974	351-4004	17
18	18-3669	49-3700	77-3730	108-3761	138-3791	169-3822	199-3852	230-3883	261-3914	291-3944	322-3975	352-4005	18
19	19-3670	50-3701	78-3731	109-3762	139-3792	170-3823	200-3853	231-3884	262-3915	292-3945	323-3976	353-4006	19
20	20-3671	51-3702	79-3732	110-3763	140-3793	171-3824	201-3854	232-3885	263-3916	293-3946	324-3977	354-4007	20
21	21-3672	52-3703	80-3733	111-3764	141-3794	172-3825	202-3855	233-3886	264-3917	294-3947	325-3978	355-4008	21
22	22-3673	53-3704	81-3734	112-3765	142-3795	173-3826	203-3856	234-3887	265-3918	295-3948	326-3979	356-4009	22
23	23-3674	54-3705	82-3735	113-3766	143-3796	174-3827	204-3857	235-3888	266-3919	296-3949	327-3980	357-4010	23
24	24-3675	55-3706	83-3736	114-3767	144-3797	175-3828	205-3858	236-3889	267-3920	297-3950	328-3981	358-4011	24
25	25-3676	56-3707	84-3737	115-3768	145-3798	176-3829	206-3859	237-3890	268-3921	298-3951	329-3982	359-4012	25
26	26-3677	57-3708	85-3738	116-3769	146-3799	177-3830	207-3860	238-3891	269-3922	299-3952	330-3983	360-4013	26
27	27-3678	58-3709	86-3739	117-3770	147-3800	178-3831	208-3861	239-3892	270-3923	300-3953	331-3984	361-4014	27
28	28-3679	59-3710	87-3740	118-3771	148-3801	179-3832	209-3862	240-3893	271-3924	301-3954	332-3985	362-4015	28
29	29-3680	0- 0	88-3741	119-3772	149-3802	180-3833	210-3863	241-3894	272-3925	302-3955	333-3986	363-4016	29
30	30-3681	0- 0	89-3742	120-3773	150-3803	181-3834	211-3864	242-3895	273-3926	303-3956	334-3987	364-4017	30
31	31-3682	0- 0	90-3743	0- 0	151-3804	0- 0	212-3865	243-3896	0- 0	304-3957	0- 0	365-4018	31

PIONEER IHELIOS JULY

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MTH DAY	JANUARY YR /BASE DAY DAY	FEBRUARY YR /BASE DAY DAY	MARCH YR /BASE DAY DAY	APRIL YR /BASE DAY DAY	MAY YR /BASE DAY DAY	JUNE YR /BASE DAY DAY	JULY YR /BASE DAY DAY	AUGUST YR /BASE DAY DAY	SEPTEMBER YR /BASE DAY DAY	OCTOBER YR /BASE DAY DAY	NOVEMBER YR /BASE DAY DAY	DECEMBER YR /BASE DAY DAY	MTH DAY
1	1-4019	32-4050	60-4078	91-4109	121-4139	152-4170	182-4200	213-4231	244-4262	274-4292	305-4323	335-4353	1
2	2-4020	33-4051	61-4079	92-4110	122-4140	153-4171	183-4201	214-4232	245-4263	275-4293	306-4324	336-4354	2
3	3-4021	34-4052	62-4080	93-4111	123-4141	154-4172	184-4202	215-4233	246-4264	276-4294	307-4325	337-4355	3
4	4-4022	35-4053	63-4081	94-4112	124-4142	155-4173	185-4203	216-4234	247-4265	277-4295	308-4326	338-4356	4
5	5-4023	36-4054	64-4082	95-4113	125-4143	156-4174	186-4204	217-4235	248-4266	278-4296	309-4327	339-4357	5
6	6-4024	37-4055	65-4083	96-4114	126-4144	157-4175	187-4205	218-4236	249-4267	279-4297	310-4328	340-4358	6
7	7-4025	38-4056	66-4084	97-4115	127-4145	158-4176	188-4206	219-4237	250-4268	280-4298	311-4329	341-4359	7
8	8-4026	39-4057	67-4085	98-4116	128-4146	159-4177	189-4207	220-4238	251-4269	281-4299	312-4330	342-4360	8
9	9-4027	40-4058	68-4086	99-4117	129-4147	160-4178	190-4208	221-4239	252-4270	282-4300	313-4331	343-4361	9
10	10-4028	41-4059	69-4087	100-4118	130-4148	161-4179	191-4209	222-4240	253-4271	283-4301	314-4332	344-4362	10
11	11-4029	42-4060	70-4088	101-4119	131-4149	162-4180	192-4210	223-4241	254-4272	284-4302	315-4333	345-4363	11
12	12-4030	43-4061	71-4089	102-4120	132-4150	163-4181	193-4211	224-4242	255-4273	285-4303	316-4334	346-4364	12
13	13-4031	44-4062	72-4090	103-4121	133-4151	164-4182	194-4212	225-4243	256-4274	286-4304	317-4335	347-4365	13
14	14-4032	45-4063	73-4091	104-4122	134-4152	165-4183	195-4213	226-4244	257-4275	287-4305	318-4336	348-4366	14
15	15-4033	46-4064	74-4092	105-4123	135-4153	166-4184	196-4214	227-4245	258-4276	288-4306	319-4337	349-4367	15
16	16-4034	47-4065	75-4093	106-4124	136-4154	167-4185	197-4215	228-4246	259-4277	289-4307	320-4338	350-4368	16
17	17-4035	48-4066	76-4094	107-4125	137-4155	168-4186	198-4216	229-4247	260-4278	290-4308	321-4339	351-4369	17
18	18-4036	49-4067	77-4095	108-4126	138-4156	169-4187	199-4217	230-4248	261-4279	291-4309	322-4340	352-4370	18
19	19-4037	50-4068	78-4096	109-4127	139-4157	170-4188	200-4218	231-4249	262-4280	292-4310	323-4341	353-4371	19
20	20-4038	51-4069	79-4097	110-4128	140-4158	171-4189	201-4219	232-4250	263-4281	293-4311	324-4342	354-4372	20
21	21-4039	52-4070	80-4098	111-4129	141-4159	172-4190	202-4220	233-4251	264-4282	294-4312	325-4343	355-4373	21
22	22-4040	53-4071	81-4099	112-4130	142-4160	173-4191	203-4221	234-4252	265-4283	295-4313	326-4344	356-4374	22
23	23-4041	54-4072	82-4100	113-4131	143-4161	174-4192	204-4222	235-4253	266-4284	296-4314	327-4345	357-4375	23
24	24-4042	55-4073	83-4101	114-4132	144-4162	175-4193	205-4223	236-4254	267-4285	297-4315	328-4346	358-4376	24
25	25-4043	56-4074	84-4102	115-4133	145-4163	176-4194	206-4224	237-4255	268-4286	298-4316	329-4347	359-4377	25
26	26-4044	57-4075	85-4103	116-4134	146-4164	177-4195	207-4225	238-4256	269-4287	299-4317	330-4348	360-4378	26
27	27-4045	58-4076	86-4104	117-4135	147-4165	178-4196	208-4226	239-4257	270-4288	300-4318	331-4349	361-4379	27
28	28-4046	59-4077	87-4105	118-4136	148-4166	179-4197	209-4227	240-4258	271-4289	301-4319	332-4350	362-4380	28
29	29-4047	0- 0	88-4106	119-4137	149-4167	180-4198	210-4228	241-4259	272-4290	302-4320	333-4351	363-4381	29
30	30-4048	0- 0	89-4107	120-4138	150-4168	181-4199	211-4229	242-4260	273-4291	303-4321	334-4352	364-4382	30
31	31-4049	0- 0	90-4108	0- 0	151-4169	0- 0	212-4230	243-4261	0- 0	304-4322	0- 0	365-4383	31

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1	1-4384	32-4415	61-4444	92-4475	122-4505	153-4536	183-4566	214-4597	245-4628	275-4658	306-4689	336-4719	1
2	2-4385	33-4416	62-4445	93-4476	123-4506	154-4537	184-4567	215-4598	246-4629	276-4659	307-4690	337-4720	2
3	3-4386	34-4417	63-4446	94-4477	124-4507	155-4538	185-4568	216-4599	247-4630	277-4660	308-4691	338-4721	3
4	4-4387	35-4418	64-4447	95-4478	125-4508	156-4539	186-4569	217-4600	248-4631	278-4661	309-4692	339-4722	4
5	5-4388	36-4419	65-4448	96-4479	126-4509	157-4540	187-4570	218-4601	249-4632	279-4662	310-4693	340-4723	5
6	6-4389	37-4420	66-4449	97-4480	127-4510	158-4541	188-4571	219-4602	250-4633	280-4663	311-4694	341-4724	6
7	7-4390	38-4421	67-4450	98-4481	128-4511	159-4542	189-4572	220-4603	251-4634	281-4664	312-4695	342-4725	7
8	8-4391	39-4422	68-4451	99-4482	129-4512	160-4543	190-4573	221-4604	252-4635	282-4665	313-4696	343-4726	8
9	9-4392	40-4423	69-4452	100-4483	130-4513	161-4544	191-4574	222-4605	253-4636	283-4666	314-4697	344-4727	9
10	10-4393	41-4424	70-4453	101-4484	131-4514	162-4545	192-4575	223-4606	254-4637	284-4667	315-4698	345-4728	10
11	11-4394	42-4425	71-4454	102-4485	132-4515	163-4546	193-4576	224-4607	255-4638	285-4668	316-4699	346-4729	11
12	12-4395	43-4426	72-4455	103-4486	133-4516	164-4547	194-4577	225-4608	256-4639	286-4669	317-4700	347-4730	12
13	13-4396	44-4427	73-4456	104-4487	134-4517	165-4548	195-4578	226-4609	257-4640	287-4670	318-4701	348-4731	13
14	14-4397	45-4428	74-4457	105-4488	135-4518	166-4549	196-4579	227-4610	258-4641	288-4671	319-4702	349-4732	14
15	15-4398	46-4429	75-4458	106-4489	136-4519	167-4550	197-4580	228-4611	259-4642	289-4672	320-4703	350-4733	15
16	16-4399	47-4430	76-4459	107-4490	137-4520	168-4551	198-4581	229-4612	260-4643	290-4673	321-4704	351-4734	16
17	17-4400	48-4431	77-4460	108-4491	138-4521	169-4552	199-4582	230-4613	261-4644	291-4674	322-4705	352-4735	17
18	18-4401	49-4432	78-4461	109-4492	139-4522	170-4553	200-4583	231-4614	262-4645	292-4675	323-4706	353-4736	18
19	19-4402	50-4433	79-4462	110-4493	140-4523	171-4554	201-4584	232-4615	263-4646	293-4676	324-4707	354-4737	19
20	20-4403	51-4434	80-4463	111-4494	141-4524	172-4555	202-4585	233-4616	264-4647	294-4677	325-4708	355-4738	20
21	21-4404	52-4435	81-4464	112-4495	142-4525	173-4556	203-4586	234-4617	265-4648	295-4678	326-4709	356-4739	21
22	22-4405	53-4436	82-4465	113-4496	143-4526	174-4557	204-4587	235-4618	266-4649	296-4679	327-4710	357-4740	22
23	23-4406	54-4437	83-4466	114-4497	144-4527	175-4558	205-4588	236-4619	267-4650	297-4680	328-4711	358-4741	23
24	24-4407	55-4438	84-4467	115-4498	145-4528	176-4559	206-4589	237-4620	268-4651	298-4681	329-4712	359-4742	24
25	25-4408	56-4439	85-4468	116-4499	146-4529	177-4560	207-4590	238-4621	269-4652	299-4682	330-4713	360-4743	25
26	26-4409	57-4440	86-4469	117-4500	147-4530	178-4561	208-4591	239-4622	270-4653	300-4683	331-4714	361-4744	26
27	27-4410	58-4441	87-4470	118-4501	148-4531	179-4562	209-4592	240-4623	271-4654	301-4684	332-4715	362-4745	27
28	28-4411	59-4442	88-4471	119-4502	149-4532	180-4563	210-4593	241-4624	272-4655	302-4685	333-4716	363-4746	28
29	29-4412	60-4443	89-4472	120-4503	150-4533	181-4564	211-4594	242-4625	273-4656	303-4686	334-4717	364-4747	29
30	30-4413	0- 0	90-4473	121-4504	151-4534	182-4565	212-4595	243-4626	274-4657	304-4687	335-4718	365-4748	30
31	31-4414	0- 0	91-4474	0- 0	152-4535	0- 0	213-4596	244-4627	0- 0	305-4688	0- 0	366-4749	31

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MTH DAY	JANUARY YR /BASE DAY DAY	FEBRUARY YR /BASE DAY DAY	MARCH YR /BASE DAY DAY	APRIL YR /BASE DAY DAY	MAY YR /BASE DAY DAY	JUNE YR /BASE DAY DAY	JULY YR /BASE DAY DAY	AUGUST YR /BASE DAY DAY	SEPTEMBER YR /BASE DAY DAY	OCTOBER YR /BASE DAY DAY	NOVEMBER YR /BASE DAY DAY	DECEMBER YR /BASE DAY DAY	MTH DAY
1	1-4750	32-4781	60-4809	91-4840	121-4870	152-4901	182-4931	213-4962	244-4993	274-5023	305-5054	335-5084	1
2	2-4751	33-4782	61-4810	92-4841	122-4871	153-4902	183-4932	214-4963	245-4994	275-5024	306-5055	336-5085	2
3	3-4752	34-4783	62-4811	93-4842	123-4872	154-4903	184-4933	215-4964	246-4995	276-5025	307-5056	337-5086	3
4	4-4753	35-4784	63-4812	94-4843	124-4873	155-4904	185-4934	216-4965	247-4996	277-5026	308-5057	338-5087	4
5	5-4754	36-4785	64-4813	95-4844	125-4874	156-4905	186-4935	217-4966	248-4997	278-5027	309-5058	339-5088	5
6	6-4755	37-4786	65-4814	96-4845	126-4875	157-4906	187-4936	218-4967	249-4998	279-5028	310-5059	340-5089	6
7	7-4756	38-4787	66-4815	97-4846	127-4876	158-4907	188-4937	219-4968	250-4999	280-5029	311-5060	341-5090	7
8	8-4757	39-4788	67-4816	98-4847	128-4877	159-4908	189-4938	220-4969	251-5000	281-5030	312-5061	342-5091	8
9	9-4758	40-4789	68-4817	99-4848	129-4878	160-4909	190-4939	221-4970	252-5001	282-5031	313-5062	343-5092	9
10	10-4759	41-4790	69-4818	100-4849	130-4879	161-4910	191-4940	222-4971	253-5002	283-5032	314-5063	344-5093	10
11	11-4760	42-4791	70-4819	101-4850	131-4880	162-4911	192-4941	223-4972	254-5003	284-5033	315-5064	345-5094	11
12	12-4761	43-4792	71-4820	102-4851	132-4881	163-4912	193-4942	224-4973	255-5004	285-5034	316-5065	346-5095	12
13	13-4762	44-4793	72-4821	103-4852	133-4882	164-4913	194-4943	225-4974	256-5005	286-5035	317-5066	347-5096	13
14	14-4763	45-4794	73-4822	104-4853	134-4883	165-4914	195-4944	226-4975	257-5006	287-5036	318-5067	348-5097	14
15	15-4764	46-4795	74-4823	105-4854	135-4884	166-4915	196-4945	227-4976	258-5007	288-5037	319-5068	349-5098	15
16	16-4765	47-4796	75-4824	106-4855	136-4885	167-4916	197-4946	228-4977	259-5008	289-5038	320-5069	350-5099	16
17	17-4766	48-4797	76-4825	107-4856	137-4886	168-4917	198-4947	229-4978	260-5009	290-5039	321-5070	351-5100	17
18	18-4767	49-4798	77-4826	108-4857	138-4887	169-4918	199-4948	230-4979	261-5010	291-5040	322-5071	352-5101	18
19	19-4768	50-4799	78-4827	109-4858	139-4888	170-4919	200-4949	231-4980	262-5011	292-5041	323-5072	353-5102	19
20	20-4769	51-4800	79-4828	110-4859	140-4889	171-4920	201-4950	232-4981	263-5012	293-5042	324-5073	354-5103	20
21	21-4770	52-4801	80-4829	111-4860	141-4890	172-4921	202-4951	233-4982	264-5013	294-5043	325-5074	355-5104	21
22	22-4771	53-4802	81-4830	112-4861	142-4891	173-4922	203-4952	234-4983	265-5014	295-5044	326-5075	356-5105	22
23	23-4772	54-4803	82-4831	113-4862	143-4892	174-4923	204-4953	235-4984	266-5015	296-5045	327-5076	357-5106	23
24	24-4773	55-4804	83-4832	114-4863	144-4893	175-4924	205-4954	236-4985	267-5016	297-5046	328-5077	358-5107	24
25	25-4774	56-4805	84-4833	115-4864	145-4894	176-4925	206-4955	237-4986	268-5017	298-5047	329-5078	359-5108	25
26	26-4775	57-4806	85-4834	116-4865	146-4895	177-4926	207-4956	238-4987	269-5018	299-5048	330-5079	360-5109	26
27	27-4776	58-4807	86-4835	117-4866	147-4896	178-4927	208-4957	239-4988	270-5019	300-5049	331-5080	361-5110	27
28	28-4777	59-4808	87-4836	118-4867	148-4897	179-4928	209-4958	240-4989	271-5020	301-5050	332-5081	362-5111	28
29	29-4778	0- 0	88-4837	119-4868	149-4898	180-4929	210-4959	241-4990	272-5021	302-5051	333-5082	363-5112	29
30	30-4779	0- 0	89-4838	120-4869	150-4899	181-4930	211-4960	242-4991	273-5022	303-5052	334-5083	364-5113	30
31	31-4780	0- 0	90-4839	0- 0	151-4900	0- 0	212-4961	243-4992	0- 0	304-5053	0- 0	365-5114	31

12/31/84 = 6575

12/31/90 = 6940

12/31/91 = 7305

APPENDIX F – FLUXPLOT SI DATA CARD STRUCTURE

This appendix contains the FLUXPLOT program's SI data card structure.

Include Card:

Column		
1	S	
2	I	
11 - 12	two-digit year	start-time of period to be included
13		
14 - 15	month	
16		
17 - 18	day	
19		
20 - 21	hour	
22		
23 - 24	minute	
25		
26 - 27	second	
28		
29 - 30	year	end-time of period to be included
31		
32 - 33	month	
34		
35 - 36	day	
37		
38 - 39	hour	
40		
41 - 42	minute	
43		
44 - 45	second	

Exclude Card: Identifies time periods from which data is to be excluded.

Character E in Column 2.

The time period to be excluded must lie entirely within the time span defined by the current include card. If this condition is not met, the program will signal an error condition.

APPENDIX G – TAPE STAGING AND STORAGE CENTER (TSSC) EXAMPLES

This appendix contains an example of the TSSC Monthly Tape Storage Status Report and the Archival Tape Storage General Purpose Form. Also, an example of the TSSC storage box label is provided.

ARCH. LOC.	ORG CODE	SERIAL NO.	TYP	RLS	USER/REQ.	DESCRIPTION	ENTRY DATE	EXPIR. DATE	STATUS DATE	STA	LOAN LOCATION	OLD LOCATION
I25P345	6640	PIOG142	D	12	811B000000664	PIOG EDR 11/4-12/1/77						
I25P346	6640	PIOG143	D	12	811B000000664	PIOG EDR 12/2-12/31/77	780330	800401	780330	2		25578167B0032
I23A202	6640	PIOG159	D	16	356F000000664	PIONEER-G EDR 2/11/79 - 3/12/79	780330	800401	780330	2		25578167B0033
I23A203	6640	PIOG160	D	16	356F000000664	PIONEER-G EDR 3/13/79 - 4/5/79	800331	820401	800331	2		25580215B0046
I23A204	6640	PIOG161	D	16	356F000000664	PIONEER-G EDR 4/06/79 - 4/25/79	800331	820401	800331	2		25580215B0047
I23A205	6640	PIOG162	D	16	356F000000664	PIONEER-G EDR 4/26/79 - 5/19/79	800331	820401	800331	2		25580215B0048
I23A206	6640	PIOG163	D	16	356F000000664	PIONEER-G EDR 5/20/79 - 6/23/79	800331	820401	800331	2		25580215B0049
I23A207	6640	PIOG164	D	16	356F000000664	PIONEER-G EDR 6/24/79 - 8/1/79	800331	820401	800331	2		25580215B0050
I23A208	6640	PIOG165	D	16	356F000000664	PIONEER-G EDR 8/02/79 - 8/27/79	800331	820401	800331	2		25580216B0001
I23D238	6640	PIOG166	D	16	356F000000664	PIONEER-G EDR 8/28/79 - 9/8/79	800331	820401	800331	2		25580216B0002
I23D239	6640	PIOG167	D	16	356F000000664	PIONEER-G EDR 9/09/79 - 10/16/79	800430	820501	800430	2		25580224B0035
I23D240	6640	PIOG168	D	16	356F000000664	PIONEER-G EDR 10/17/79- 11/27/79	800430	820501	800430	2		25580224B0036
I23D241	6640	PIOG169	D	16	356F000000664	PIONEER-G EDR 11/28/79- 01/12/80	800430	820501	800430	2		25580224B0037
I23T205	6640	PIOG170	D	16	356F000000664	PIONEER G EDR 01/13/80 - 02/25/80	800430	820501	800430	2		25580224B0038
I23T206	6640	PIOG171	D	16	356F000000664	PIONEER G EDR 02/26/80 - 04/03/80	801130	821201	801130	2		25581151B0002
I23T207	6640	PIOG172	D	16	356F000000664	PIONEER G EDR 04/04/80 - 05/09/80	801130	821201	801130	2		25581151B0003
I23T208	6640	PIOG173	D	16	356F000000664	PIONEER G EDR 05/10/80 - 06/22/80	801130	821201	801130	2		25581151B0004
I24H217	6640	PIOG175	D	16	356G000000664	PIONEER-G EDRS 8/3/80 - 9/9/80	801130	821201	801130	2		25581151B0005
I24H218	6640	PIOG176	D	16	356G000000664	PIONEER-G EDRS 9/10/80- 10/15/80	810531	830601	820228	8	RUSSELL	25581180B0007
I24H219	6640	PIOG177	D	16	356G000000664	PIONEER-G EDRS 10/16/80-11/20/80	810531	830601	820228	8	RUSSELL	25581180B0008
I24H220	6640	PIOG178	D	16	356G000000664	PIONEER-G EDRS 11/21/80-12/31/80	810531	830601	810531	2		25581180B0009
I24H221	6640	PIOG179	D	16	356G000000664	PIONEER-G EDRS 1/1/81 - 2/6/81	810531	830601	810531	2		25581180B0010
I14W302	6640	PIOG180	D	16	356G000000664	PIONEERG EDRS 2/7/81 - 3/18/81	810531	830601	810531	2		25581180B0011
I14W303	6640	PIOG181	D	17	356G000000664	PIONEERG EDRS 3/19/81 - 4/24/81	811231	840101	811231	2		25582170B0014
I14W304	6640	PIOG182	D	16	356G000000664	PIONEERG EDRS 4/26/81 - 5/29/81	811231	840101	811231	2		25582170B0015
I14W305	6640	PIOG183	D	16	356G000000664	PIONEERG EDRS 5/30/81 - 7/7/81	811231	840101	811231	2		25582170B0016
I14W306	6640	PIOG184	D	16	356G000000664	PIONEERG EDRS 7/8/81 - 8/10/81	811231	840101	811231	2		25582170B0017
I14W307	6640	PIOG185	D	16	356G000000664	PIONEERG EDRS 8/11/81 - 9/19/81	811231	840101	811231	2		25582170B0018
I16H314	6640	PIOG186	D	16	356G000000664	PIONEER-G EDR 9/20/81- 10/29/81	811231	840101	811231	2		25582170B0019
I16H315	6640	PIOG187	D	16	356G000000664	PIONEER-G EDR 10/30/81- 12/06/81	820331	840401	820331	2		25582181B0044
I16M302	6640	PIOG188	D	16	356G000000664	PIONEERG-EDRS 12/7/81 - 1/14/82	820331	840401	820331	2		25582181B0045
I16M303	6640	PIOG189	D	16	356G000000664	PIONEERG-EDRS 1/15/82 - 2/21/82	820430	840501	820430	2		25582188B0008
I16R314	6640	PIOG190	D	16	356G000000664	PIONEER-G EDR RUNS 2/22/82-3/28/82	820430	840501	820430	2		25582188B0009
I17A337	6640	PIOG191	D	16	356G000000664	PIONEER-G EDR 3/29/82 - 5/9/82	820630	840701	820630	2		25582194B0021
I17A338	6640	PIOG192	D	16	356G000000664	PIONEER-G EDR 5/10/82 - 6/20/82	820930	841001	820930	2		25582203B0010
I17F308	6640	PIOG193	D	16	356G000000664	PIONEER G EDR 6/21/82-7/31/82	820930	841001	820930	2		25582203B0011
I17F309	6640	PIOG194	D	16	356G000000664	PIONEER G EDR 8/1/82-9/7/82	821130	841201	821130	2		25583156B0001
I13A311	6640	PIOG195	D	16	RUSSELL	PIONEER-G EDR 9/8/83-10/22/82	821130	841201	821130	2		25583156B0002
I13A310	6640	PIOG196	D	16	RUSSELL	PION-G EDR 9/29-10/1,10/23,11/30/82	831123	851123		2		
I13A309	6640	PIOG197	D	16	RUSSELL	PION-G EDR 11/29/82-1/3/83	831123	851123		2		
I17K316	6640	PIOG200	D	16	WORTMAN	PIONEER-G EDR 3/26/83 - 5/1/83	831123	851123		2		
I17K317	6640	PIOG201	D	16	WORTMAN	PIONEER-G EDR 5/2/83 - 6/14/83	840309	860309		2		
I17K318	6640	PIOG202	D	16	WORTMAN	PIONEER-G EDR 6/15/83 - 7/22/83	840309	860309		2		
I17K319	6640	PIOG203	D	16	WORTMAN	PIONEER-G EDR 7/23/83 - 8/29/83	840309	860309		2		
I17K320	6640	PIOG204	D	16	WORTMAN	PIONEER-G EDR 8/30/83 - 10/9/83	840309	860309		2		
I18R342	6640	PIOG205	D	16	MCGOVERN	PIONEER G EDR 10-10-83 TO 11-17-83	840309	860309		2		
I18R341	6640	PIOG206	D	16	MCGOVERN	PIONEER G EDR 11-18-83 TO 12-31-83	840329	860329		2		
I19D207	6640	PIOG207	D	16	SMITH	PIONEER G EDR 01-01-84 TO 02-14-84	840329	860329		2		
I22W236	6640	PIOG208	D	16	MCGOVEAN	PIONEER G EDR 02-15-84 TO 03-22-84	840430	860430		2		
I22E226	6640	PIOF167	D	16	356F000000664	PIONEER-F EDR 1/1/78-2/15/78	840809	860809		2		
I22E227	6640	PIOF168	D	16	356F000000664	PIONEER-F EDR 2/17/78-3/19/78	790930	811001	790930	2		25579171B0013
							790930	811001	790930	2		25579171B0014

GODDARD SPACE FLIGHT CENTER
ARCHIVAL TAPE STORAGE GENERAL PURPOSE FORM

1. PICK UP FROM or DELIVERY TO (PRINT):	2. BLDG. NO.	3. ROOM NO.	4. EXT.	5. DATE	6.
Pick Up From	2	242	X6115	9/18/84	Page 1 OF 1

7. TRANS. CODE	8. GSFC CODE	9. TAPE TYPE	10. PERSON RESPONSIBLE FOR BOXES	11. DOC. CONT. NO.
2	664	D	Kristin Wortman	
1	2 5	13	29 41	

12. SERIAL NO.	13. LOCATION	14. NO. TPS	15. TRANS. DATE Y Y M M D D	16. DESCRIPTION OF BOXES	17. RET CYL
6 12	14 20	21 22	23 28	42 78	79 80
PIOF167		16		PIONEER-F EDR'S 1/1/78 - 2/15/78	24
PIOF168		16		PIONEER-F EDR'S 2/16/78 - 3/20/78	24
PIOF169		16		PIONEER-F EDR'S 3/21/78 - 4/15/78	24

DETAILED INSTRUCTIONS FOR THE COMPLETION OF THIS FORM ON BACK OF COPY 4.

INSTRUCTIONS

POSITION 7: Enter one of the following transaction codes:

- 0 For permanent withdrawal from storage
- 2 For new storage
- 3 For return to storage from loan
- 8 For loan from storage

POSITION 8: Enter the four position code of the GSFC organization, i.e., 8631, 4150 for new storage. For Code 0, 3 or 8 transactions this entry must be identical with the same field in the 1658 report prepared and distributed by TSSC.

POSITION 9: Enter D (digital), A (analog) or V (video) for tape types. Do not mix different types on the same sheet.

POSITION 10: Enter person responsible for boxes.

POSITION 11: Leave blank; the field will be completed by TSSC.

POSITION 12: For new storage; enter the unique seven position serial number selected by the originator to identify the specific box. For all others; enter the serial number as contained in the 1658 report distributed by TSSC.

POSITION 13: Leave blank for new storage; the field will be completed by TSSC. For all others fill in location portion exactly as listed in the 1658 report.

POSITION 14: Enter number of tapes in box.

POSITION 15: Leave blank; the field will be completed by TSSC.

POSITION 16: Use for new storage transaction code 2 only. This field is for the originator's use to describe the box. The field cannot exceed the 37 positions on the form including all blanks.

POSITION 17: For new storage; enter the number of months the boxes are to remain in storage not to exceed 24 months. For permanent withdrawal; enter "01" for rehab, and enter "02" for release to user.

NASA GODDARD SPACE FLIGT CENTER TAPE CONTAINER LABEL

1. WNRC RECORD GP NO.	2. WNRC ACCESSION NO.	3 WNRC CONTAINER NO.
255		

4. ORG. CODE - TYPE OF TAPE (A OR D) - SATELLITE - ORG. SERIAL NO.
664 D 356F PIOF167

5. TRACKING STATION OR DATA TYPE	6. REEL IDENTIFICATION NO.
	PIONEER-F EDR's
	1/1/78 - 2/15/78

7. STORAGE LOCATION TAPE DEPOSITORY OR WNRC

CAUTION
MAGNETIC TAPES

KEEP AWAY FROM
MAGNETIC FIELDS RADIATION
POWER LINES EXCESSIVE HEAT

AIRTRANSPORT IN PRESSURIZED COMPARTMENTS
DO NOT USE ELECTRONIC DETECTION DEVICES

APPENDIX H – MICROGRAPHICS JOB CARD

This appendix contains an example of a Micrographics job card. This job card is used for requests to the Micrographics Facility located in Building 23.

MICROGRAPHICS JOB CARD

LOG# 04565

W O R T M A N	6 6 4	3 5 6 F	5 B Φ Φ I	P
USER	15 BRANCH	20 PROJECT	20 SPONSOR	32 TYPE

1 344-6115 PHONE ☐ CALL WHEN READY

CLASS

I/P TAPES	16MM	OUTPUT 35MM	105MM
TRACKS 9	ORIGINALS 1	ORIGINALS	ORIGINALS
DENSITY 1600	COPIES	COPIES	COPIES
NO. FILES 1	NO. FRAMES 24	NO. FRAMES	NO. FICHE
PROCESSOR Meta			NO. FRAMES
	HARDCOPY 1		24X 42X CIRCLE ONE

SPECIAL INSTRUCTIONS

FICHE TITLE _____

Process file 1, Tape to Bldg. 1,
Film and H.C to BF3.

RETURN TO _____

43 38	TIME IN	67 TAPE PROC	COMPLETED PROD.	COMMENTS
	TIME ON		16MM ORIG COPY	
48	TIME OFF	70 FILES PROC	35MM ORIG COPY	
	TIME CTD	73 FRAMES PROC	105MM ORIG COPY	
53			HARDCOPY	
		79 FILES UNPR	TO BLDG 8	
62 58		FICHE		

JOB RETURNED INCOMPLETE:	MICRO ACCOUNTING	INPUT TAPES
JOB CARD INCORRECT	SYSTEM COST	P10Φ1 – 23540
NOT AUTHORIZED	ADDED SYSTEM COST	
INSUFFICENT FUNDS	ADDITIONAL COST	
WRONG TAPES	TOTAL COST	
OTHER		

APPENDIX I – EXPERIMENTER DATA RECORD (EDR) TAPESCAN

This appendix contains a tapescan of a good multiday EDR tape. This example is provided for header label information and DCB information.

```
TAPESCAN 4.3  -  GSFC TAPE ANALYSIS AND COPYING PROGRAM    09/13/84   11:03:20.8   INPUT VOL=E02101   (LAST MOD-07/25/84)   PAGE   1
OPTIONS IN EFFECT: LIST=004,MAXEOV=004

PIONEER F EDR  2 ACQUISITIONS GSFC/CRT S/C ID 23 GENERATED  8/22/84 REGENERATED   /  /   221/84 DSIF NO.                TLM BIT RATE
DCDDCCD4C4CCD44F4CCDECECECDDE4CECC6CDE4E6C4CC4FF4CCDCDCECC44F6FF6FF4DCCCDCDCECC4446446444FFF6FF4CECC4DD4444444444444444EDD4CCE4DCEC
7965559060549002013849293965207263139302130940230755591354008122184095755591354000100100022118404296056B0000000000000000334029309135

TAPEMARK NO 0001                    BLOCK LENGTHS:  MIN=00480  MAX=00480  AVG=00480    NUMBER OF BLOCKS=000001

      3221 18 50 40 CDX2  C  221 18 52 40 RIP3  V  221 18 53 02 CDX1  V
4444444FFFF4FF4FF4FF4CCEF44C44FFF4FF4FF4FF4DCDF44E44FFF4FF4FF4FF4CCEF44E4444444444444444444444444444444444444444444444444444444444444444
0000000322101805004003472003002210180520400997300500221018053002034710050000000000000000000000000000000000000000000000000000000000000

TAPEMARK NO 0002                    BLOCK LENGTHS:  MIN=01200  MAX=01200  AVG=01200    NUMBER OF BLOCKS=000001

  A|          AB6/GA7◊=BA*YB,<<          AO          AB6/GA7◊=B=P◊B,<<          A)          AB6/GA7◊=B:WWB,<<          AUC*E
0004000000000004FE4C30344D24E8C0000000000050000000000004FE4C30343104E8C0000000000050000000000004FE4C30343A64E8C0000000000060DC00000
001F0000000000001261717AE21C82BCC0000000000160000000000001261717AE2E7A2BCC0000000000D0000000000001261717AE2A662BCC0000000000143C500000

TAPEMARK NO 0003                    BLOCK LENGTHS:  MIN=01240  MAX=01240  AVG=01240    NUMBER OF BLOCKS=000001

A¬2>   )       AAX     "   A   HBC)K  .G  DC    AM  AJU*   BBLH A¬)*B$U AS/OI¬")BJ(E"""""""""""""""""""""""""""""""""""""""""""""""""""
0D3A000D0000000042800003000000000D0000000000049004D650000C1800D9941E042610D3D41C4BFFFFFFFFFFFBFFFFFFFFFFFBFFFFFFFFFFFBFFFFFFFFFFF
1F2E000D0000000117000000F0001000823D200B70043000014001140000223801FDC2B4012169FFD21D5FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

BA6A   )       AAV     "   A   HBC*=  <   DC    A;  AJU*   BBLH BBE=B$U AS/O◊BX"BJ(ESA6A|"    I SA(2      I SAVSF|C$   "SA∂J B|"  (
00B4000D0000000042800003000000000F0008000000049C04D650000C18000C341E04261006741C460B40F00000060CB000000046E20C07000760F9000F0008
2161000D0000000115000000F0001000823CE00C0004300001E00114C0002238022 5E2B401216A27F21D52161FF00009021D20000009021526F3B000F21C102FF00D0

BU)T   )       AAX     "   A   HBC*W  +   DC    AZ- AJU*   BBLH BV%;B$U AS/O◊V|-BJ(ESU)T|"    ( SU5L       "SV<BA? Q   "SVU2 C ,   "
02DE000D0000000042000003000000000092000000000004A604D650000C18002ED41E0426102824 1C462DE0F00000862F500000007620C0601000762230002000 7
24D3000D0000000117000000F0001000823C600E0004300001900114C0002238025CE2B401216A5F021D524D3FF0009D024530000000F25C21F08000F2542030B000F

BHEE   )       AA/     "   A   HBC$+  |   DC    A4- AJU*   BBZD BIM B$U AS/O◊H6CBJ(ESHEE|"     "SH*4       "SH4VG| H   "SH.M I I   "
0408000D0000000042800003000000000094000800000004B204D650000420004184 1E0426104BC41C464080F000007641F000000076436080000076 44D00000007
2855000D0000000111000000F0001000823BE00F0004300001400114C0002294029402B401216A86321D52855FF00000F28C40000000F28457F08000F28B40909000F

TAPEMARK NO 0004                    BLOCK LENGTHS:  MIN=05204  MAX=05204  AVG=05204    NUMBER OF BLOCKS=000009

TAPEMARK NO 0005 -- EOV NO 001

PIONEER F EDR  5 ACQUISITIONS GSFC/CRT S/C ID 23 GENERATED  8/22/84 REGENERATED   /  /   222/84 DSIF NO.                TLM BIT RATE
DCDDCCD4C4CCD44F4CCDECECECDDE4CECC6CDE4E6C4CC4FF4CCDCDCECC44F6FF6FF4DCCCDCDCECC4446446444FFF6FF4CECC4DD4444444444444444EDD4CCE4DCEC
7965559060549005013849293965207263139302130940230755591354008122184095755591354000100100022218404296056B0000000000000000334029309135

TAPEMARK NO 0006                    BLOCK LENGTHS:  MIN=00480  MAX=00480  AVG=00480    NUMBER OF BLOCKS=000001

      18222 08 03 29 CDX2  C  222 08 05 29 RIP3  V  222 08 08 29 FAD3  V  222 08 08 51 PAY7  V  222 08 21 29 PAY7  V            222
444444FFFFF4FF4FF4FF4CCEF44C44FFF4FF4FF4FF4DCDF44E44FFF4FF4FF4FF4CCCF44E44FFF4FF4FF4FF4DCEF44E44FFF4FF4FF4FF4DCEF44E444444444444FFF4
0000001822200800302903472003002220080050290997300500222008008029061430050022200800805107187005002220080210290718700500000000000002220

TAPEMARK NO 0007                    BLOCK LENGTHS:  MIN=01200  MAX=01200  AVG=01200    NUMBER OF BLOCKS=000001

  A|          AB6/GA7◊=BA*YB,<<          AO          AB6/GA7◊=B=P◊B,<<          A)          AB6/GA7◊=B:WWB,<<          AUC*E
0004000000000004FE4C30344D24E8C0000000000050000000000004FE4C30343104E8C0000000000050000000000004FE4C30343A64E8C0000000000060DC00000
001F0000000000001261717AE21C82BCC0000000000160000000000001261717AE2E7A2BCC0000000000D0000000000001261717AE2A662BCC0000000000143C500000

TAPEMARK NO 0008                    BLOCK LENGTHS:  MIN=01240  MAX=01240  AVG=01240    NUMBER OF BLOCKS=000001
```

```
TAPESCAN 4.3  -  GSFC TAPE ANALYSIS AND COPYING PROGRAM    09/13/84   11:03:20.8   INPUT VOL=E02101   (LAST MOD-07/25/84)   PAGE   2

  JO   ;        AAQ     ,   A   HBC◊&"""""  DC  B E4U AJU*    BBPO """"E4U E4U """"E4U """""""""""""""""""""""""""""""""""""""""""""
0015000D000000004100000200000000085FFFF000000004F204D650000417OFFFF4F204F20FFFF4F20BFFFFFFFFFFFBFFFFFFFFFFFBFFFFFFFFFFFBFFFFFFFFFFF
0016000E0000000118OOOOOB0001000823A0FFFF004300205440114C00022700FFFF54405440FFFF5440FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

 $R,   ;        AA&     ,   A   HBCIW  &    DC     A=  AJU*    BBPO  *YYB$U AS/OH*◊ZBJ(E-$R,|"     "-$0$         "-$H.C| C  ( -$-: E D   "
0156000D0000000041800002000000000008A00100000000043C04D65000041700166 41E04261010A41C461560F000007617D0000000761840000008619B00000007
0B9B000E00000001100000OB0001000823960000004300001E00114C000227000C882B4012168CA921D50B9BFF00000F0B0B000000F0B8B3F0300D00BFA0504000F

 =A<   ;        A &     ,   A   HBCH.  J    DC     AI- AJU*    BBPO  "&IB$U AS/OH"2IBJ(E-=A<|"     I -=Q=        I -=?%A? E  I -=G* I E   "
0380000D000000004900000200000000008C00180000000044604D650000417003904 1E04261033441C463800F0000063970000000863AE0200000863C500000007
0E1C000E00000000100000OB00010008238B00100043000019 00114C000227000F092B4012168F2921D50E1CFF0000900E8E000000900E:C1F0500900E7C0905000F

 EQ#   ;        AAK     "   A   HBCHS  JH   DC     AI- AJU*    BBPO  "&IB$U AS/OH"2IBJ(E""""""""""""""""""""""""""""""""""""""""""""""
0417000D00000000CD000003000000000008A001C000000000446 04D65000041700390 41E04261033441C4BFFFFFFFFFFFBFFFFFFFFFFFBFFFFFFFFFFFBFFFFFFFFFFF
058B000E0000000112OOOOOF0001000823820018004300001900114C000227000F092B4012168F2921D5FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

TAPEMARK NO 0009                BLOCK LENGTHS:  MIN=05204  MAX=05204  AVG=05204    NUMBER OF BLOCKS=000020

TAPEMARK NO 0010 -- EOV NO 002

PIONEER F EDR  3 ACQUISITIONS GSFC/CRT S/C ID 23 GENERATED  8/22/84 REGENERATED   /  /    223/84 DSIF NO.                 TLM BIT RATE
DCDDCCD4C4CCD44F4CCDECECECDDE4CECC6CDE4E6C4CC4FF4CCDCDCECC44F6FF6FF4DCCCDCDCECC4446446444FFF6FF4CECC4DD4444444444444444EDD4CCE4DCEC
7965559060549003013849293965207263139302130940230755591354008122184095755591354000100100022318404296056B000000000000000033402930913 5

TAPEMARK NO 0011                BLOCK LENGTHS:  MIN=00480  MAX=00480  AVG=00480    NUMBER OF BLOCKS=000001

      93223 06 02 21 CDX2  C  223 06 04 21 RIP3  V  223 06 05 21 PAY7  V  223 07 55 21 PAY7  V  223 07 56 21 CDX1  V            223
444444FFFFF4FF4FF4FF4CCEF44C44FFF4FF4FF4FF4DCDF44E44FFF4FF4FF4FF4DCEF44E44FFF4FF4FF4FF4DCEF44E44FFF4FF4FF4FF4CCEF44E444444444444FFF4
0000009322300600202103472003002230060040210997300500223006005021071870050022300705502107187005002230070560210347100500000000000002230

       223 21 30 18 IPW2  V  223 21 30 40 IPW2  V  223 21 38 16 IPW5  V  223 21 38 38 IPW2  V  223 21 39 00 IPW4  V            223
44444444FFF4FF4FF4FF4CDEF44E44FFF4FF4FF4FF4CDEF44E44FFF4FF4FF4FF4CDEF44E44FFF4FF4FF4FF4CDEF44E44FFF4FF4FF4FF4CDEF44E444444444444FFF4
0000000022302103001809762005002230210300400976200500223021038016097650050022302103803809762005002230210390000976400500000000000002230

TAPEMARK NO 0012                BLOCK LENGTHS:  MIN=01200  MAX=01200  AVG=01200    NUMBER OF BLOCKS=000002

  A|           AB6/GA7◊=BA*YB,<<           AO           AB6/GA7◊=B=P◊B,<<           A)           AB6/GA7◊=B:WWB,<<           AUC*E
00040000000000004FE4C30344D24E8C000000000005000000000000 4FE4C30343104E8C000000000005000000000000 4FE4C30343A64E8C0000000000060DC00000
001F000000000001261717AE21C82BCC0000000000160000000000001261717AE2E7A2BCC00000000001D00000000000 1261717AE2A662BCC000000000143C500000

TAPEMARK NO 0013                BLOCK LENGTHS:  MIN=01240  MAX=01240  AVG=01240    NUMBER OF BLOCKS=000001

  CL    -       AAP     ,   A   HBC -""""  DC  B E4U AJU*    BB2H """"E4U E4U """"BJ(E""""""""""""""""""""""""""""""""""""""""""""""
0001000D000000004100000200000000006EFFFF000000004F204D65000043C0FFFF4F204F20FFFF41C4BFFFFFFFFFFFBFFFFFFFFFFFBFFFFFFFFFFFBFFFFFFFFFFF
0033000F0000000117OOOOOB0001000823A0FFFF004300205440114C00022280FFFF54405440FFFF21D5FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

 $PF    -       AA&     ,   A   HBC 1  G    DC     A◊- AJU*    BB2H  *WAB$U AS/OH*ICBJ(E-$PF|"     "-$?6         "-*FWE| G  I -*;N H E  (
01DC000D000000004180000200000000006300000000000004C204D65000043C001EC41E04261018041C461DC0F00000761E300000007610A0000000861110000000 8
0B76000F00000001100000OB0001000823A10070004300001A00114C000222800C612B4012168C9321D50B76FF00000F0BF60000000F0C665F0700900CE5080500D0

 ="W    -       A &     ,   A   HBCZM  H    DC A   6  AJU*    BB2H   +TE4U AS/O""""BJ(E-="W|"     "-"OO          "-">FH| )   "-"E5 - D   "
03F6000D00000000490000020000000000650008000000000043004D65000043C004064F204261FFFF41C463F60F000007631D000000076324080100076 34B05000007
0EF6000F00000001000000OB00010008239400800043010006 00114C0002228000E354401216FFFF21D50EF6FF00000F0F660000000F0FE68F0D000F0F550F04000F

 AWZV   -       A       "   A   HBC;?""""  DC  A   6  AJU*    BBN∂ """"E4U AS/O""""BJ(E""""""""""""""""""""""""""""""""""""""""""""""
0E62000D00000000000000300000000005EFFFF0000000043004D650000417 0FFFF4F204261FFFF41C4BFFFFFFFFFFFBFFFFFFFFFFFBFFFFFFFFFFFBFFFFFFFFFFF
1695000F00000001000000OF0001000823EFFFFF004300100600114C000225C0FFFF54401216FFFF21D5FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
```

2.