DATA SET CATA LOG #66

RELAY 2
Charged Particle 'A'

64-003A-02A 6 tapes

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1. INTRODUCTION:

The documentation for this data set was originally on paper, kept in NSSDC's Data Set Catalogs (DSCs). The paper documentation in the Data Set Catalogs have been made into digital images, and then collected into a single PDF file for each Data Set Catalog. The inventory information in these DSCs is current as of July 1, 2004. This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system. The information existing in the DSCs is now not needed for locating the data files, but we did not remove that inventory information.

The offline tape datasets have now been migrated from the original magnetic tape to Archival Information Packages (AIP's).

A prior restoration may have been done on data sets, if a requestor of this data set has questions; they should send an inquiry to the request office to see if additional information exists.

2. ERRATA/CHANGE LOG:

NOTE: Changes are made in a text box, and will show up that way when displayed on screen with a PDF reader.

When printing, special settings may be required to make the text box appear on the printed output.

Version	Date	Person	Page	Description of Change
01				
02				

3 LINKS TO RELEVANT INFORMATION IN THE ONLINE NSSDC INFORMATION SYSTEM:

http://nssdc.gsfc.nasa.gov/nmc/

[NOTE: This link will take you to the main page of the NSSDC Master Catalog. There you will be able to perform searches to find additional information]

4. CATALOG MATERIALS:

a. Associated Documents To find associated documents you will need to know the document ID number and then click here. http://nssdcftp.gsfc.nasa.gov/miscellaneous/documents/

b. Core Catalog Materials

RELAY 2

ELECTRON-PROTON DATA, L-ORDERED, TAPE

64-003A-02A

THIS DATA SET HAS BEEN RESTORED. THERE WERE ORIGINALLY SIX 7-TRACK, 800 BPI TAPES, WRITTEN IN BINARY. THERE IS ONE RESTORED TAPE. THE DR TAPE IS A 3480 CARTRIDGE AND THE DS TAPE IS 9-TRACK, 6250 BPI. THE ORIGINAL TAPES WERE CREATED ON A BESYS COMPUTER. THE DR AND DS NUMBERS, ALONG WITH THE CORRESPONDING D NUMBERS AND TIME SPANS ARE AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
DR003108	DS003108	D000119	1-63	01/21/64 - 01/31/65
		D000120	64-102	01/21/64 - 01/31/65
		D000121	103-127	01/21/64 - 01/31/65
		D000122	128-190	01/01/65 - 12/31/65
		D000123	191-232	01/01/65 - 12/31/65
		D000124	233-254	01/01/65 - 12/31/65

RELAY 2
CHARGED PARTICLE 'A'

64-003A-02A

800 BPI, 7-track, Binary, BESYS

D# *	C#	FILES	START - STOP	
D-00119	C-03905	63 first part.	1/21/64 - 1/31/65	
D-00120	C-03906	39 " part.	1/21/64 - 1/31/65	1 of 2
D-00121	C-03907	25 "	1/21/64 - 1/31/65	2 of 2
D-00122	C-03908	63 first part.	1/01/65 -12/31/65	
D-00123	C-03909	42 part.	1/01/65 -12/31/65	1 of 2
D-00124	C-03910	22 rest part.	1/01/65 -12/31/65	2 of 2

* 4/2/73. These D tapes have been sent to the Federal Records Center. Only the C tapes remain in the data center.
TAR

Enclosed in the Relay 2, Charged Particle 'A' data set catalog are final listings of data display for the range of L values on the Relay 2 Electron and Proton data. This data may be regenerated by using the four programs A6.02.036A, A6.02.036B, A6.02.036C and A6.02.036D and documentation indicated in the data set catalog. Don Hei has verified the resultant listings and has decided not to make them a new data set.

RA 7504$_1$ A6.02.036A

*There are four (4) programs written for this request (see "Difficulties Encountered").

PROGRAM #1

DATA SET: RELAY II

DATE: January 26, 1972

OBJECTIVE: Part 1 To reformat FORTRAN II half-word integer data to full-word FORTRAN IV readable data and deblock records.

DESCRIPTION: The record format on the existing data set was written in FORTRAN II, variable-spanned blocked format. Conventional FORTRAN IV unformatted read was useless due to half-word integer record description words. Therefore a pre-processor program was written to change the existing format. This program was written for processing either single or multi-reel data sets. The total number of files for either single or multi-reel data sets must be at least 60.

INPUT:

CARDS One card is read with two values on it which input the number of files on the first input tape and the X number of the second input tape, respectively. The number of files on the first input tape must be greater than the number of files on the second input tape. If the data set is on a single reel, the number of files should be any value greater than the actual number of files on the input tape and the X number field can be left blank.

The format is 215, two integers which are right-justified in CC 1-5 and CC 6-10, respectively.

TAPE Logical unit on A2, 800 BPI, 7 track, Binary

OUTPUT:

TAPE Logical unit on A3, 800 BPI, 7 track, Binary, 6 files.

COMMENT: It should be noted that the last file on tape 1 of multi-reel data sets is actually the beginning of the first file on tape 2 of 2. The program takes this into consideration.

A6.02.036B

*There are four (4) programs written for this request (see "Difficulties Encountered").

PROGRAM #2

DATA SET: RELAY II

DATE: January 26, 1972

OBJECTIVE: Part 2 To bypass incorrect data types.

DESCRIPTION: After Program #1, efforts to process the data encountered record types in conflict with documentation codes as well as spanned records exceeding documentation limits. This program bypasses all incorrect record types and merges the spanned records together to form one variable length physical/logical record.

INPUT:
TAPE Output of Program #1 on Unit A2.

OUTPUT:
TAPE Logical Unit A3, 800 BPI, Binary, 6 files.

A6.02.036C

*There are four (4) programs written for this request (see "Difficulties Encountered").

PROGRAM #3

DATA SET:		RELAY II
DATE:		January 11, 1972
OBJECTIVE:	Part 3	To eliminate from the tape records which are not the size which the control word for each physical record specifies.
DESCRIPTION:		Each physical record actual length is compared with the length specified in the fourth word of the record. If two are not equal, the record is deleted from the tape. Logical record size is 9 words for proton tapes, 13 for electron tapes. One card is read which gives logical record length.
INPUT:		
CARDS		One integer which is either a 9 in CC 2 or a 13 in CC 1-2. The 13 is used for electron tapes and the 9 is used for proton tapes.
TAPES		Output generated from Program #2. Logical unit A2, 800 BPI, 7 track, binary, 6 files.
OUTPUT:		
TAPES		Logical unit B1. 800 BPI, 7 track, Binary, 6 files.

A6.02.036D

*There are four (4) programs written for this request (see "Difficulties Encountered").

PROGRAM #4

DATA SET:		RELAY II
DATE:		January 12, 1972
OBJECTIVE:	Part 4	Data display for range of L values and day, time, and L values appearing in every 10th logical record in every 10th file.
DESCRIPTION:		Output tape of Program #3 is used to fulfill the request.
INPUT:		
TAPES		Output tape generated from Program #3 on unit A2.
CARDS		One integer which is either a 9 in CC 2 or a 13 in CC 1-2. The 13 is used for electron tapes and the 9 is used for proton tapes.
OUTPUT:		
PRINTER		Logical unit C3, data elements displayed.

Difficulties Encountered

NOTE: There are four (4) sets of RELAY II tapes to be processed. Two sets of 63 files on each tape are the electron data tapes and can be processed with the existing programs. The other two sets (proton data tapes) differ slightly in format and file structures. (see data set catalogue #66). However, the same programs can be used for processing proton tapes, by modifying an input card.

- FORTRAN II data format. (Ex, Integer data are in half-words where 000123 value appears as 123000. This caused problems in attempting to READ (5) A,B,(C(I), I=1B) where B was a Fortran II integer).

- Data types (in the control word) were to indicate records spanned, records complete within block, and records incomplete within block. This was found to be false in some cases.

- Record count had to be accounted for when attempting to read records longer than the LIST specified. This caused ABENDS and had to be bypassed by record count.

- Too many ABENDS were encountered to use the record count method of bypassing incorrect length records. Program had to be re-run after every ABEND. For example, there were 79 records on tape D-119 with incorrect lengths. Obviously another program had to be written to take care of this. This is taken care of in Part 4.

RELAY I

DOCUMENTATION OF THE BTL SATELLITE DATA TAPES

RELAY II

62-06EA-03A

64-003A-03A

I. TAPE FORMAT

The BTL satellite data tapes were written with Fortran programs on an IBM 7094 under control of the BE-SYS monitor. These Fortran output routines generate tapes where the logical records produced by individual WRITE TAPE or WRITE OUTPUT TAPE statements do not correspond to the actual physical records. The following description of this tape blocking process is provided to enable a user to decode the tapes.

BE-SYS uses word lengths of 36 bits, which can also be described as 12 octal digits, or as 6 characters, where a character is denoted by 2 octal digits. Character or BCD information is written on tape so as to be directly meaningful to the 1460. Since information is encoded there differently than in the 7094, a translation is necessary between tape and the 7094. Table I-1 contains a list of the character codes for the 7094 and their translation for the 1460 or for tapes.

Most of the data on the Bell Labs satellite output tapes is binary information written with the Fortran "WRITE TAPE" statement. The list of data written by one such statement is called a logical record, and can consist of up to 999 words. For uniformity, BE-SYS writes all tape output in physical records (or blocks) which normally contain up to 167 words. Each block is a single 800 bit per inch binary tape

record and can contain either part of a logical record, or one or more logical records.

Logical records are separated in the blocks (physical records) by control words(of 6 characters). The first character in the control word is always octal 77. The second character is a control character or flag. The third character, the file identification character, is generally blank and can be ignored. The last three characters indicate the length (word count in 1460 BCD code) of the logical record that follows. Records written with a Fortran "WRITE TAPE" statement will have only P and Q flags as control characters. If the logical record fits within the block, it is assigned a Q flag. However, if it overflows the block, it is broken into two or more logical records, the last of which has a Q flag, all others having P flags. Thus on reading, a sequence of logical records flagged P, followed by one flagged Q, should be considered as a single logical record.

Each block is terminated with a control word containing an E flag as the control character. The word count field in this control word is used to indicate the number of logical records within the block. This count includes only records which have been completed.

There is also some information on the tapes, generally identification files or records, which has been generated by Fortran "WRITE ØUTPUT TAPE" statements. This

information has been encoded by means of a specified format into BCD or Hollerith information. BE-SYS blocks this data in the same manner as binary data (i.e. in physical records of up to 167 words which contain logical records separated by control words). This information is distinguished from binary information by the use of different control characters or flags.

The flags which are valid for a Fortran "READ INPUT TAPE" statement are H, L, and M. All indicate that the logical record contains BCD or Hollerith information to be decoded character by character according to some Format. An H flag indicates a BCD card image with a maximum length of 14 words (84 characters). Records written with a Fortran "WRITE OUTPUT TAPE" statement will have L and M flags as control characters. If the logical record is greater than 22 words, it is broken up into two or more records, the last of which has an L flag; all others having M flags. If the logical record contains 22 words or less, it is assigned an L flag. Thus, on reading, a sequence of logical records flagged M, followed by one flagged L should be treated as a single record.

Multireel Tapes: On some occasions, data runs over from one reel to a second. The BE-SYS monitor uses a double end-of-file mark to signify the end of a reel. Thus on reading a

double end of file, the user should proceed to the second tape and continue reading. This should not be interpreted as an end of file.

Examples of Tape Blocking

Example 1: This is an octal dump of the first file of the Relay I electron L-tables tape. This file is an identification file which was generated by a Fortran "WRITE ØUTPUT TAPE" statement. It contains only one physical record (or block). The numbers in the first column of the dump refer to word number within the block.

The first word of the block (octal 774300120102) is a control word, as indicated by the octal 77. The second character in the word is denoted by the octal 43 which represents the character L (see Table I-1). This L indicates that the following logical record contains BCD information, and that the record is completed within the block. The last 6 octal digits (120102) represent the characters 012 and indicate that the logical record contains 12 words. Translating the next 12 words character by character yields: bRELAYbI bbELECTRØNbDATAbTAPEbPØRb12/01/62b(DAYb335)b-b03/31/64b (DAYb091), where b represents a blank.

The final word in the block is another control word. Its second character is an E (octal 65) which indicates that this is the end of the block. The word count (octal 121201) specifies that one logical record was completed within the block.

EXAMPLE 1

RECORD NO. 0001

```
0001  774600120102   605145436130   007100036543   656323514645   006461236100   234147650066
0007  465100010221   120121060200   346461300003   030974004000   120321030121   060460346461
0[illegible]  300012110174   776500121201
[illegible] OF FILE
```

Example 2: This is an octal dump of the first file of the Explorer XV L-files tape. This is a data file which was generated by Fortran "WRITE TAPE" statements. It is contained in three physical records (or blocks).

The Q flag (octal 50) in the first control word (7750000120104) indicates that the logical record contains binary information and is complete within the block; the word count (octal 120104) specifies that there are 14 words in the logical record. The next 14 words should be interpreted as explained in the Explorer XV write-up in section II: the first 13 as floating point data, and the fourteenth as an octal flag.

The first word following these 14 data words (word 16 of the block) is another control word. It indicates another 14-word binary logical record which follows.

The last logical record in the block begins with the control word at word 151 of the physical record. It is also 14 words long and is completed within the block. The final control word (word 166) contains an E flag (octal 65), and a word count (octal 120101) which indicates that 11 logical records have been completed within this block.

Example 3: This is an octal dump of the first two physical records of a data file on the Relay I electron L-tables tape.

The Q flag (octal 50) in the first control word (7750001121206) indicates that the logical record contains

EXAMPLE 2

RECORD NO. 0001

0001	775000120104	201431463146	176740166710	211455300337	203607653304	000000000000
[illegible]	203421075947	000000000000	202527431503	000000000000	202621276113	000000000000
[illegible]	174746022545	207426172532	022223004440	775000120104	201431463146	17[illegible]
0019	211465230454	000000000000	000000000000	000000000000	000000000000	[illegible]
0025	000000000000	000000000000	000000000000	177365245023	206734465704	03[illegible]
0031	775000120104	201431463146	177420513447	211502157107	000000000000	[illegible]
0037	000000000000	20[illegible]673735	000000000031	000000000000	000000000000	[illegible]
0043	177[illegible]469332	2074274[illegible]	001353000000	775000120104	201431463146	17[illegible]2
0049	211522123444	200561424560	175702630507	174641564217	177607553314	[illegible]
0055	177510214501	177463777430	177516562023	174650972712	207417137746	[illegible]
0061	775000120104	201431463146	177403324377	211610104100	[illegible]420	175[illegible]170
[illegible]157	177412763037	176422341173	201755073227	175407164640	203463002417	17[illegible]377
	177431630653	207434652464	000003600000	775000120104	201431463146	176774611635
	211311141143	000000000000	000000000000	000000000000	000000000000	000000000000
[illegible]	175404422576	000000000000	175402565767	176752707515	206770524034	331113000000
0091	775000120104	201431463146	176760101422	211521066705	000000000000	175764407712
0097	000000000000	200426234725	000000000000	177455445532	000000000000	177573507534
0103	176566420576	207411104141	010003000000	775000120104	201431463146	176777117041
0109	211522042054	000000000000	000306000000	000000000000	000000000000	000000000000
0115	175634426322	000000000000	175654204237	177401370135	207431505461	032003004440
0121	775000120104	201431463146	176742337635	211524130303	000000000000	000000000000
0127	000000000000	000000000000	000000000000	000000000000	177400000000	000000000000
0133	175475404054	202422301243	031223000000	775000120104	201431463146	176731400471
0139	211526110531	000000000000	175557604433	000000000000	200434631656	203373232071
0145	177642461502	201432543667	177710220122	000000000000	206655110442	010003000000
[illegible]	775000120104	201431463146	176740710102	211350071000	000000000000	000000000000
	205713230645	000000000000	203556423771	000000000033	202563775760	000000000000
	174662361554	207135354522	032223004440	776500120101		

RECORD NO. 0002

	775000120104	201431463146	176741206477	211531145413	203440707723	000000000000
	202414274076	000000000000	202434230764	000000000000	203414637436	176733653775
	174751731461	206760645135	022203000000	775000120104	201431463146	175746557256
0019	211532051014	000000000000	000000000000	000000000000	000000000000	[illegible]
0025	000000000000	000000000000	000000000000	[illegible]75761354651	206761126035	032223000000
0031	775000120104	201431463146	176760066441	211534030642	000000000000	[illegible]
0037	000000000000	000000000000	000000000000	000000000000	000000000000	[illegible]
0043	176566032434	207413137320	032223000000	775000120104	201431463146	17674[illegible]
0049	211543532556	000000000000	000000000000	177402455753	000000000000	000000000000
0055	000000000000	200610421046	000000000000	174576055707	206731701523	032223004440
0061	775000120104	201431463146	176740131102	211550053614	202513247131	[illegible]
0067	205422431421	000000000000	260707511736	000000000000	222561047000	[illegible]
0073	17445[illegible]	201604470321	072223000000	775000120104	201431463146	176737947731
0079	21155[illegible]423	203526425247	175624340765	201473471421	176434621060	2015[illegible]
0085	17640[illegible]	223404542550	1[illegible]64419[illegible]410	173457550241	200446591021	000000000440
0091	77500[illegible]	201431463146	[illegible]754703421	211556674552	205443467063	000000000000
0097	20244[illegible]	000000000000	[illegible]42577[illegible]	000000000000	222601027417	000000000000
[illegible]	17652071[illegible]	200504174237	032223000000	775000120104	201431463146	176743710213
[illegible]	21155[illegible]	000000000000	000000000000	000000000000	176434440051	000000000000
0115	175712751671	000000000000	000000000000	175605461104	2065417[illegible]370	031[illegible]
0121	775000120104	201431463146	176743730013	211557054462	000000000000	000000000000
0127	000000000000	17543[illegible]400051	000000000000	175712751671	000000000000	000000000000
0133	17560[illegible]104	20654[illegible]337564	03[illegible]	775000120104	201431463146	17674[illegible]20423
0139	21156[illegible]216	000000000000	000000000000	21[illegible]577517356	000000000000	201724[illegible]
0145	000000000000	222621043000	000000000000	175415464071	205575660316	032223000000
0151	775000120104	201431463146	176747061341	211560055271	000000000000	000000000000
0157	20240[illegible]0742	000000000000	20246247[illegible]	000000000000	217777120000	000000000000
0163	175770[illegible]466	20[illegible]117111346	032223000000	776500120101		

RECORD NO. 0003

[illegible]001	77[illegible]0120104	20[illegible]1463146	176750741021	21[illegible]0116702	202702297374	000000000000
[illegible]	200[illegible]3410	000000000000	200755407242	[illegible]0020	221615165505	000000000000
[illegible]	17643[illegible]70650	200600414277	022223000000	[illegible]120104	201431463146	176741[illegible]
	21[illegible]454302	000000000000	000000000000	201757350453	000000000000	20243354[illegible]
[illegible]	[illegible]	221602420244	000000000000	175432571475	200646373401	032223[illegible]
0001	[illegible]122					

END OF F[illegible]

binary information and is complete within the block; the word count (octal 121206) specifies six words. These next six words should be interpreted as explained in the Relay I write-up in section V: the first two as floating point, and the last four as decrement integers.

In interpreting the remainder of the block one proceeds as in Example 2. At the end of the block an example of the use of the P flag occurs. The control word at word 163 of the block contains a P flag (octal 47) which indicates that only the first part of this logical record is contained in the block. The word count indicates that two words are in this block.

The final word of the block (a control word with an E flag) specifies that four logical records were completed in the block; this count does not include the record with the P flag.

The remaining portion of the incomplete record is found at the beginning of the next block. The first logical record there has a Q flag and contains 14 words. In unblocking, these 14 words should be appended to the two words from the preceding block to form a single 16 word logical record.

EXAMPLE 3

RECORD NO. 0001

0001	775800121266	201531460145	201546111543	000076000000	000533000000	000160000000
0007	000133000000	775000120403	000076000000	000554000000	000003000000	176664247073
0013	176653226712	176423116527	201546111565	201535341217	201546111565	211551076173
[illegible]	211533074105	211533050776	000610002500	000647002577	000333002551	000527042470
[illegible]	000534537450	000670245621	176452504751	176424600662	176452504751	177426631070
[illegible]	179731260624	176447102330	200000020000	200077140014	010000010100	210430020000
0037	021674363517	21[illegible]4594291	213645400000	621674363517	217540026657	[illegible]
0043	421674363517	211017731174	211716[illegible]257	021674363517	215772473576	175501636721
0049	604554276505	201702543273	775000121104	600077000000	000333000000	000207000100
0055	175747344152	176421051077	176455220007	176401472150	176491673407	176411032551
0061	176645247727	201535341217	201554324774	201544472274	201534121727	201551152376
0067	201533510015	201541014223	211607075562	211607077666	211607076623	211607075274
0073	211607077400	211607075006	211607077112	001431002550	001374002477	001112002550
0079	001465002590	001305002572	001451002550	001216002553	600722226506	600707012270
[illegible]5	600652125462	600714611635	600570765135	600736517400	600661506203	176424600602
[illegible]	176422116320	176447346362	176421371540	176426550456	176420123400	176455607567
[illegible]7	167405275000	176415165040	175665225010	171713152200	174664512220	173427017770
0103	175477627240	007000000003	007000000003	005000000003	007000000103	007100000000
0109	007000000000	007000000003	215404266667	215435507514	213757511112	215416733334
0115	214477000000	215420224744	214535733334	217667442223	217673257035	217423133334
0121	217792335556	217635762223	217[illegible]054160	217540273334	217462431111	217445022460
0127	216513415556	217473422222	21[illegible]2751111	217502476654	216672644445	216660411111
0133	216574312742	215601255555	216605762223	216511373334	216604447655	216410051111
0139	202400422773	201770725370	202437243604	202472004717	177546126655	202514676731
0145	203520216457	775000120106	000077000000	000151000000	000001000000	176564561744
0151	201535747331	211729062046	000424002473	600571522535	176426033462	176550565430
0157	004000000001	212532362023	215673474405	214640224744	214421303373	177627173107
0163	774700121302	000077000000	000[illegible]53000000	776500121204		

RECORD NO. 0002

0001	775000120104	000001000000	175642503525	201536152374	217727071107	[illegible]
[illegible]	000041013542	176426550466	176714770320	000000000005	210700451710	214411066427
[illegible]	213401607357	212505056427	175640313200	775000120106	000077000000	000154000000
[illegible]	000001000000	176614374240	201541525462	211730062561	000371002474	600650063515
[illegible]	176431505254	176647647500	006000000004	211616161616	214737252525	213577434343
[illegible]	213437070707	176573324311	775000120106	000077000000	000150000000	[illegible]
0037	177413154750	201544467227	211734072603	000331002445	600442542000	175446057534
0043	177337400226	000400000000	000000000000	200201070707	050010000000	000000000000
0049	000010000000	775000120106	000077000000	000163000000	000001000000	176435505564
0055	201534121727	211737074011	000436002475	600543514251	176421371540	176662651164
0061	000000000000	210755252525	214536252525	213512707070	212616525252	175773332525
0067	775000120106	000077000000	000167000000	000031000000	177404165234	201534630041
0073	211743050144	000370002420	600460471010	176422626707	177501347026	[illegible]
0079	000000000000	000000000000	000000000000	000000000000	000000000000	775000120106
0085	000077000000	000172000000	000001000000	176654551247	201533513615	211746152534
0091	000466002477	000533527245	176420131400	176716642544	003000000024	[illegible]
0097	213401417576	212613075041	211650171227	175443741245	775000120106	000077000000
0103	000174000000	000001000000	176603601041	201541217370	211756070464	000000007420
0109	600561150407	175451511657	176637437750	000000000000	211607525252	215450757470
[illegible]5	214502070707	213555070707	177415500105	775000120106	000077000000	[illegible]
[illegible]1	000001000000	175611030001	201537371406	211756567743	000532001433	600540125404
[illegible]27	175431746604	[illegible]	000000000000	210732525252	214560434343	213564707070
0133	217605616161	176592124277	775000120106	000077000000	000205000000	000201000000
0139	176605134713	201534121727	211757040222	[illegible]	600561174335	176421371540
0145	175574350646	[illegible]	211634440767	215413302600	214531147521	215530017552
0151	177501201772	774700120103	000077000000	000211000000	000001000000	176633441052
0157	201535544264	211761054154	000608002427	600544635502	176425516256	176671741770
0163	000000000003	210766707070	214530707070	776500121211		

TABLE I-1

Description or Function	7094 Octal Code	Blocked Tape Code (1460 BCD Code)
Zero	00	12
One	01	01
Two	02	02
Three	03	03
Four	04	04
Five	05	05
Six	06	06
Seven	07	07
Eight	10	10
Nine	11	11
	12	20
Equals	13	13
Quotes	14	14
	15	15
	16	16
Tape Mark	17	17
Plus	20	60
A	21	61
B	22	62
C	23	63
D	24	64
E	25	65
F	26	66
G	27	67
H	30	70
I	31	71
Plus Zero	32	72
Period	33	73
Right Paren	34	74
	35	75
	36	76

TABLE I-1 (con't.)

Description or Function	7094 Octal Code	Blocked Tape Code (1460 BCD Code)
Group Mark	37	77
Minus	40	40
J	41	41
K	42	42
L	43	43
M	44	44
N	45	45
O	46	46
P	47	47
Q	50	50
R	51	51
Minus Zero	52	52
Dollar Sign	53	53
Asterisk	54	54
	55	55
	56	56
Mode Change	57	57
Blank	60	00
Slash	61	21
S	62	22
T	63	23
U	64	24
V	65	25
W	66	26
X	67	27
Y	70	30
Z	71	31
Record Mark	72	32
Comma	73	33
Left Paren	74	34
Word Separator	75	35
	76	36
Tape Seg. Mark	77	37

V. RELAY I

The Relay L-tables program has two tapes as output: an electron L-tables tape and a proton L-tables tape. Both tapes are file structured.

The first file is a BCD identification file describing the tape in one or two records which can be read in (12A6) format. For example,

RELAY I ELECTRØN DATA TAPE FØR 12/01/62 (DAY 335) - 3/31/64 (DAY 091)

Files 2 to 62 contain the data divided up into L slices; for example, file 2 contains all data occurring on L shells from L = 1.00 to L = 1.049. Table V shows the correspondence between file number and L-range.

File 63 contains only a one-word record (= 777777000000) indicating the end-of-tape.

The electron and proton L-tables tapes differ only in the structure of the data files.

ELECTRON L-TABLES TAPE - Structure of Data Files (2 to 62)

The first record within each data file consists of six words as follows:

Word 1: Minimum L for this file (floating point)
Word 2: Maximum L for this file (floating point)
Word 3: Year of first data on tape - 1900 (e.g. 64) } decrement integers
Word 4: Day of year of first data

Word 5: Year of final data on tape

Word 6: Day of year of final data

The remaining records in each file of the electron tape are all of the same type and can be read with a Fortran statement as follows:

```
READ TAPE IT, IYR, IDAY, NPTS, ((DATA(I,J), I = 1,NPTS),
     J = 1,13)
```

where IT is the input tape

IYR is the year - 1900 for the data in the record

IDAY is the day

NPTS is the number of points in the record

DATA(I,J) is an array of data where the index J denotes the kind of data

J = 1	B, magnetic induction in Gauss
2	L, magnetic shell parameter
3	time in fractions of days of 1962 (1/1/62 at noon = 0.5)
4	co-gamma x 10. in bits 0 to 17; live time in bits 18 to 35
5	log B
6	log L
7	log B/B_o
8	Flag = XXXWYYZZZZVZ in octal digits
9	F0
10	F1
11	F2
12	F3
13	F0B

F0, F1, F2, F3, F0B: in counts/second

In the flag word (J = 8), the octal digits labelled Y refer to the electron detectors. If YY = 00, all electron data is good. If YY ≠ 00, consider YY = abcdef in bits, then if a = 1, F4 data is bad, if b = 1, live time is bad, if c = 1 F3B data is bad, if d = 1, F3 data is bad, if e = 1, F2 data is bad, if f = 1, F1 data is bad.

PROTON L-TABLES TAPE - Structure of Data Files (2 to 62)

The first record in each data file is the same as on the electron tape. The remaining records are in sets of nine (three proton detectors which are read in each of three bias states). In each set of nine:

Record 1 contains E1 at 100v.
Record 2 contains E1 at 5v.
Record 3 contains E1 at 22v.
Record 4 contains E2 at 100v.
Record 5 contains E2 at 5v.
Record 6 contains E2 at 22v.
Record 7 contains E3 at 100v.
Record 8 contains E3 at 5v.
Record 9 contains E3 at 22v.

The records can be read with a Fortran statement as follows:

```
READ TAPE IT, IYR, IDAY, NPTS, ((DATA(I,J),I = 1,NPTS),J = 1,9)
```

The variables are defined as for the electron tape, however the DATA array has a smaller second dimension. The

words with J = 9 contain the detector reading in counts/second for the appropriate proton detector. In the flag word (J = 8) the octal digit labelled W refers to the proton detectors. If W = 0, all proton data is good. If W ≠ 0, consider it equal to xyz in bits: if x = 1, E3 data is bad, if y = 1, E2 data is bad, if z = 1, E1 data is bad.

If there is no data for a particular record, NPTS in that record equals 0.

More details on the Bell Labs experiments on this satellite can be found in the "Final Report on the Relay I Program", NASA SP-76, Chapter 6.

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TABLE V-1

File Number		File Number	
2	1.000-1.049	32	3.000-3.099
3	1.050-1.099	33	3.100-3.199
4	1.100-1.149	34	3.200-3.299
5	1.150-1.199	35	3.300-3.399
6	1.200-1.249	36	3.400-3.499
7	1.250-1.299	37	3.500-3.599
8	1.300-1.349	38	3.600-3.699
9	1.350-1.399	39	3.700-3.799
10	1.400-1.449	40	3.800-3.899
11	1.450-1.499	41	3.900-3.999
12	1.500-1.549	42	4.000-4.099
13	1.550-1.599	43	4.100-4.199
14	1.600-1.649	44	4.200-4.299
15	1.650-1.699	45	4.300-4.399
16	1.700-1.749	46	4.400-4.499
17	1.750-1.799	47	4.500-4.599
18	1.800-1.849	48	4.600-4.699
19	1.850-1.899	49	4.700-4.799
20	1.900-1.949	50	4.800-4.899
21	1.950-1.999	51	4.900-4.999
22	2.000-2.099	52	5.000-5.099
23	2.100-2.199	53	5.100-5.199
24	2.200-2.299	54	5.200-5.299
25	2.300-2.399	55	5.300-5.399
26	2.400-2.499	56	5.400-5.499
27	2.500-2.599	57	5.500-5.599
28	2.600-2.699	58	5.600-5.699
29	2.700-2.799	59	5.700-5.799
30	2.800-2.899	60	5.800-5.899
31	2.900-2.999	61	5.900-5.999
		62	6.000-6.999

EOF-PARITY-ERROR TAPE CHECK RUN BEGINS.

```
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.     2  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.     2  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.     2  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.     2  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.     2  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.     2  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.     4  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.     9  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.    25  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.    58  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.    66  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.    76  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.    81  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.    87  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.    99  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.   106  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.   116  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.   133  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.   148  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.   162  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.   176  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.   387  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.   464  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.   435  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.   331  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.   300  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.   268  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.   240  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.   235  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.   220  OF FILE
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO.   207  OF FILE
```

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63 files

N PHYSICAL RECORD NO. 2 OF FILE NO. 1
N PHYSICAL RECORD NO. 2 OF FILE NO. 2
N PHYSICAL RECORD NO. 2 OF FILE NO. 3
N PHYSICAL RECORD NO. 2 OF FILE NO. 4
N PHYSICAL RECORD NO. 2 OF FILE NO. 5
N PHYSICAL RECORD NO. 2 OF FILE NO. 6
N PHYSICAL RECORD NO. 4 OF FILE NO. 7
N PHYSICAL RECORD NO. 9 OF FILE NO. 8
N PHYSICAL RECORD NO. 25 OF FILE NO. 9
N PHYSICAL RECORD NO. 58 OF FILE NO. 10
N PHYSICAL RECORD NO. 66 OF FILE NO. 11
N PHYSICAL RECORD NO. 76 OF FILE NO. 12
N PHYSICAL RECORD NO. 81 OF FILE NO. 13
N PHYSICAL RECORD NO. 87 OF FILE NO. 14
N PHYSICAL RECORD NO. 99 OF FILE NO. 15
N PHYSICAL RECORD NO. 106 OF FILE NO. 16
N PHYSICAL RECORD NO. 116 OF FILE NO. 17
N PHYSICAL RECORD NO. 133 OF FILE NO. 18
N PHYSICAL RECORD NO. 148 OF FILE NO. 19
N PHYSICAL RECORD NO. 162 OF FILE NO. 20
N PHYSICAL RECORD NO. 176 OF FILE NO. 21
N PHYSICAL RECORD NO. 387 OF FILE NO. 22
N PHYSICAL RECORD NO. 464 OF FILE NO. 23
N PHYSICAL RECORD NO. 435 OF FILE NO. 24
N PHYSICAL RECORD NO. 331 OF FILE NO. 25
N PHYSICAL RECORD NO. 300 OF FILE NO. 26
N PHYSICAL RECORD NO. 268 OF FILE NO. 27
N PHYSICAL RECORD NO. 240 OF FILE NO. 28
N PHYSICAL RECORD NO. 235 OF FILE NO. 29
N PHYSICAL RECORD NO. 220 OF FILE NO. 30
N PHYSICAL RECORD NO. 207 OF FILE NO. 31

AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 216 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 199 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 154 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 142 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 122 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 98 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 86 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 74 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 63 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 57 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 52 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 49 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 44 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 44 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 40 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 34 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 29 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 28 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 25 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 23 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 24 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 21 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 20 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 21 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 22 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 20 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 15 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 18 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 16 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 12 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 97 OF FILE NO.
AN END-OF-FILE HAS BEEN ENCOUNTERED ON PHYSICAL RECORD NO. 2 OF FILE NO.

YSICAL RECORD NO. 216 OF FILE NO. 32

YSICAL RECORD NO. 199 OF FILE NO. 33

YSICAL RECORD NO. 154 OF FILE NO. 34

YSICAL RECORD NO. 142 OF FILE NO. 35

YSICAL RECORD NO. 122 OF FILE NO. 36

YSICAL RECORD NO. 98 OF FILE NO. 37

YSICAL RECORD NO. 86 OF FILE NO. 38

YSICAL RECORD NO. 74 OF FILE NO. 39

YSICAL RECORD NO. 63 OF FILE NO. 40

YSICAL RECORD NO. 57 OF FILE NO. 41

YSICAL RECORD NO. 52 OF FILE NO. 42

YSICAL RECORD NO. 49 OF FILE NO. 43

YSICAL RECORD NO. 44 OF FILE NO. 44

YSICAL RECORD NO. 44 OF FILE NO. 45

YSICAL RECORD NO. 40 OF FILE NO. 46

YSICAL RECORD NO. 34 OF FILE NO. 47

YSICAL RECORD NO. 29 OF FILE NO. 48

YSICAL RECORD NO. 28 OF FILE NO. 49

YSICAL RECORD NO. 25 OF FILE NO. 50

YSICAL RECORD NO. 23 OF FILE NO. 51

YSICAL RECORD NO. 24 OF FILE NO. 52

YSICAL RECORD NO. 21 OF FILE NO. 53

YSICAL RECORD NO. 20 OF FILE NO. 54

YSICAL RECORD NO. 21 OF FILE NO. 55

YSICAL RECORD NO. 22 OF FILE NO. 56

YSICAL RECORD NO. 20 OF FILE NO. 57

YSICAL RECORD NO. 15 OF FILE NO. 58

YSICAL RECORD NO. 18 OF FILE NO. 59

YSICAL RECORD NO. 16 OF FILE NO. 60

YSICAL RECORD NO. 12 OF FILE NO. 61

YSICAL RECORD NO. 97 OF FILE NO. 62

YSICAL RECORD NO. 2 OF FILE NO. 63

MINIMUM L FOR THIS FILE = 0.4899999E 01
MAXIMUM L FOR THIS FILE = 0.4998999E 01
YEAR OF FIRST DATA ON TAPE = 1965
DAY OF YEAR OF FIRST DATA = 1

FILE	RECORD	DAY	HHMMSS	B VALUE
50	1	2	20539	0.7651000E-01
50	11	10	22542	0.7030000E-01
50	21	16	21844	0.5056000E-01
50	31	38	23824	0.2559400E 00
50	41	44	24046	0.5212000E-01
50	51	59	22824	0.5844000E-01
50	61	60	21354	0.2625900E 00
50	71	66	25758	0.2553400E 00
50	81	67	30137	0.2528400E 00
50	91	79	23228	0.2539800E 00
50	101	80	24233	0.5956000E-01
50	111	87	24132	0.5414000E-01
50	121	100	20239	0.5050000E-01
50	131	107	22436	0.6473000E-01
50	141	121	24529	0.1904100E 00
50	151	128	25844	0.1111400E 00
50	161	135	22935	0.1136400E 00
50	171	136	21943	0.9410000E-01
50	181	142	25838	0.8527000E-01
50	191	149	30134	0.1612700E 00
50	201	150	24418	0.7743000E-01
50	211	157	20337	0.6565000E-01
50	221	158	22928	0.7188000E-01
50	231	163	20934	0.6454000E-01
50	241	166	24533	0.6242000E-01
50	251	170	20538	0.1546700E 00
50	261	177	23519	0.9809000E-01
50	271	178	21336	0.5711000E-01
50	281	184	15905	0.5616000E-01
50	291	185	24531	0.5419000E-01
50	301	192	22340	0.5041000E-01
50	311	194	25638	0.5400000E-01
50	321	198	21256	0.5351000E-01
50	331	203	30029	0.5452000E-01
50	341	207	25940	0.4579000E-01
50	351	212	20737	0.5454000E-01
50	361	214	24830	0.4540040E-01
50	371	219	24434	0.6090000E-01
50	381	221	23137	0.5571000E-01
50	391	228	20137	0.5838007E-01
50	401	233	20527	0.5591000E-01
30	411	235	24012	0.6343000E-01
50	421	242	25437	0.4910000E-01
50	431	244	23034	0.7897000E-01
50	441	247	24740	0.5350000E-01
50	451	248	25712	0.2101100E 00
50	461	255	21237	0.5424000E-01
50	471	261	22429	0.1983800E 00
50	481	268	22411	0.6754000E-01
50	491	275	23359	0.1675700E 00
50	501	278	20922	0.8951000E-01
50	511	280	22355	0.1573100E 00
50	521	282	20627	0.1061800E 00
50	531	283	24437	0.1492300E 00
50	541	289	23908	0.1341300E 00
50	551	291	22813	0.1525600E 00

MINIMUM L FOR THIS FILE = 0.4899999E 01
MAXIMUM L FOR THIS FILE = 0.4998999E 01
YEAR OF FIRST DATA ON TAPE = 1965
DAY OF YEAR OF FIRST DATA = 1

DAY	HHMMSS	B VALUE	L VALUE
2	20539	0.7651000E-01	0.4965000E 01
10	22542	0.7030000E-01	0.4921000E 01
16	21844	0.5056000E-01	0.4959000E 01
38	23824	0.2559400E 00	0.4901000E 01
44	24046	0.5212000E-01	0.4909000E 01
59	22824	0.5844000E-01	0.4956000E 01
60	21354	0.2625900E 00	0.4923000E 01
66	25758	0.2553400E 00	0.4959000E 01
67	30137	0.2528400E 00	0.4945000E 01
79	23228	0.2539800E 00	0.4968000E 01
80	24233	0.5956000E-01	0.4943000E 01
87	24132	0.5414000E-01	0.4957000E 01
100	20239	0.5050000E-01	0.4912000E 01
107	22436	0.6473000E-01	0.4978000E 01
121	24529	0.1904100E 00	0.4900000E 01
128	25844	0.1111400E 00	0.4916000E 01
135	22935	0.1136400E 00	0.4943000E 01
136	21943	0.9410000E-01	0.4916000E 01
142	25838	0.8527000E-01	0.4951000E 01
149	30134	0.1612700E 00	0.4986000E 01
150	24418	0.7743000E-01	0.4989000E 01
157	20337	0.6565000E-01	0.4925000E 01
158	22928	0.7188000E-01	0.4938000E 01
163	20934	0.6454000E-01	0.4921000E 01
166	24533	0.6242000E-01	0.4970000E 01
170	20538	0.1546700E 00	0.4924000E 01
177	23519	0.9809000E-01	0.4952000E 01
178	21336	0.5711000E-01	0.4905000E 01
184	15905	0.5616000E-01	0.4917000E 01
185	24531	0.5419000E-01	0.4993000E 01
192	22340	0.5041000E-01	0.4923000E 01
194	25638	0.5400000E-01	0.4974000E 01
198	21256	0.5351000E-01	0.4946000E 01
203	30029	0.5452000E-01	0.4989000E 01
207	25940	0.4579000E-01	0.4925000E 01
212	20737	0.5454000E-01	0.4980000E 01
214	24830	0.4540000E-01	0.4961000E 01
219	24434	0.6090000E-01	0.4989000E 01
221	23137	0.5571000E-01	0.4992000E 01
228	20137	0.5838000E-01	0.4990000E 01
233	20527	0.5591000E-01	0.4976000E 01
235	24012	0.6343000E-01	0.4994000E 01
242	25437	0.4910000E-01	0.4981000E 01
244	23034	0.7897000E-01	0.4890000E 01
247	24740	0.5350000E-01	0.4817000E 01
248	25712	0.2101100E 00	0.4873000E 01
255	21237	0.5424000E-01	0.4886000E 01
261	22429	0.1983800E 00	0.4864000E 01
268	22411	0.6754000E-01	0.4852000E 01
275	23359	0.1675700E 00	0.4916000E 01
278	20922	0.8951000E-01	0.4987000E 01
280	22355	0.1573100E 00	0.4952000E 01
282	20627	0.1061800E 00	0.4979000E 01
283	24437	0.1492300E 00	0.4963000E 01
289	23908	0.1341300E 00	0.4936000E 01
291	22813	0.1525600E 00	0.4942000E 01

50	561	292	21634	0.1629400E 0
50	571	294	25033	0.1596200E 0
50	581	298	21748	0.8298000E-0
50	591	302	21530	0.1328600E 0
50	601	303	21238	0.8815000E-0
50	611	305	25230	0.1027700E 0
50	621	306	22216	0.1241500E 0
50	631	308	20730	0.1114800E 0
50	641	311	23237	0.1189800E 0
50	651	331	20909	0.9076000E-0
50	661	332	15824	0.5632000E-0
50	671	335	23022	0.5749000E-0
50	681	337	24447	0.6768000E-0
50	691	342	25430	0.7089000E-0
50	701	353	22338	0.2272400E 0
50	711	361	25805	0.5047000E-0
50	721	364	21642	0.5453000E-0

292	21634	0.1629400E 00	0.4976000E 01
294	25033	0.1596200E 00	0.4984000E 01
298	21748	0.8298000E-01	0.4924000E 01
302	21530	0.1328600E 00	0.4995000E 01
303	21238	0.8815000E-01	0.4998000E 01
305	25230	0.1027700E 00	0.4962000E 01
306	22216	0.1241500E 00	0.4907000E 01
308	20730	0.1114800E 00	0.4942000E 01
311	23237	0.1189800E 00	0.4942000E 01
331	20909	0.9076000E-01	0.4989000E 01
332	15824	0.5632000E-01	0.4925000E 01
335	23022	0.5749000E-01	0.4904000E 01
337	24447	0.6768000E-01	0.4960000E 01
342	25430	0.7089000E-01	0.4995000E 01
353	22338	0.2272400E 00	0.4970000E 01
361	25805	0.5047000E-01	0.4955000E 01
364	21642	0.5453000E-01	0.4917000E 01

MINIMUM L FOR THIS FILE = 0.5899999E 01
MAXIMUM L FOR THIS FILE = 0.5998999E 01
YEAR OF FIRST DATA ON TAPE = 1965
DAY OF YEAR OF FIRST DATA = 1

FILE	RECORD	DAY	HHMMSS	B VALUE
60	1	51	23136	0.5305000E-01
60	11	59	15723	0.5109000E-01
60	21	66	21644	0.5867000E-01
60	31	79	20825	0.5106000E-01
60	41	80	22437	0.6659000E-01
60	51	100	23839	0.6738000E-01
60	61	122	22730	0.1041600E 00
60	71	129	20024	0.1452000E 00
60	81	135	24331	0.1223600E 00
60	91	142	22532	0.1167000E 00
60	101	149	24357	0.9034000E-01
60	111	156	23234	0.8368000E-01
60	121	170	22939	0.6556000E-01
60	131	178	21236	0.9085000E-01
60	141	186	24932	0.5575000E-01
60	151	198	21256	0.5501000E-01
60	161	206	23330	0.5524000E-01
60	171	207	22045	0.5615000E-01
60	181	220	21133	0.5759000E-01
60	191	228	30036	0.5690000E-01
60	201	234	20337	0.5743000E-01
60	211	240	24638	0.6232000E-01
60	221	243	24331	0.5549000E-01
60	231	244	23835	0.7093000E-01
60	241	248	24708	0.5517000E-01
60	251	255	25930	0.6182000E-01
60	261	262	24128	0.5863000E-01
60	271	278	20921	0.8224000E-01
60	281	290	24638	0.8616000E-01
60	291	293	21134	0.9081000E-01
60	301	303	23526	0.1142600E 00
60	311	336	22240	0.5890000E-01
60	321	353	24128	0.5196000E-01

NIMUM L FOR THIS FILE = 0.5899999E 01
XIMUM L FOR THIS FILE = 0.5998999E 01
AR OF FIRST DATA ON TAPE = 1965
Y OF YEAR OF FIRST DATA = 1

DAY	HHMMSS	B VALUE	L VALUE
51	23136	0.5305000E-01	0.5966000E 01
59	15723	0.5109000E-01	0.5980000E 01
66	21644	0.5867000E-01	0.5945000E 01
79	20825	0.5106000E-01	0.5944000E 01
80	22437	0.6659000E-01	0.5942000E 01
100	23839	0.6738000E-01	0.5965000E 01
122	22730	0.1041600E 00	0.5960000E 01
129	20024	0.1452000E 00	0.5944000E 01
135	24331	0.1223600E 00	0.5971000E 01
142	22532	0.1167000E 00	0.5977000E 01
149	24357	0.9034000E-01	0.5953000E 01
156	23234	0.8368000E-01	0.5931000E 01
170	22939	0.6556000E-01	0.5915000E 01
178	21236	0.9085000E-01	0.5937000E 01
186	24932	0.5575000E-01	0.5915000E 01
198	21256	0.5501000E-01	0.5925000E 01
206	23330	0.5524000E-01	0.5924000E 01
207	22045	0.5615000E-01	0.5901000E 01
220	21133	0.5759000E-01	0.5975000E 01
228	30036	0.5690000E-01	0.5934000E 01
234	20337	0.5743000E-01	0.5974000E 01
240	24638	0.6232000E-01	0.5908000E 01
243	24331	0.5549000E-01	0.5929000E 01
244	23835	0.7093000E-01	0.5844000E 01
248	24708	0.5517000E-01	0.5807000E 01
255	25930	0.6182000E-01	0.5830000E 01
262	24128	0.5863000E-01	0.5805000E 01
278	20921	0.8224000E-01	0.5987000E 01
290	24638	0.8616000E-01	0.5934000E 01
293	21134	0.9081000E-01	0.5902000E 01
303	23526	0.1142600E 00	0.5975000E 01
336	22240	0.5890000E-01	0.5988000E 01
353	24128	0.5196000E-01	0.5982000E 01