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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 offline tape datasets have now been migrated from the original magnetic tape to magnetic disk (starting in mid-2004). Accordingly, statements in the format descriptions that address such tape relevant factors as blocking and but density are no longer applicable. The paper documentation in the Data Set Catalogs have been scanned and made into digital images of the pages, the collected into a single PDF file for each Data Set Catalog.

The inventory information in these DSCs is current as of July 1, 2004. But this inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system, and the user should go to that interface (JIN) if further information existing in the DSCs is now not needed for locating data files, but we did not go to the trouble of removing that inventory information.

2. CHANGE LOG

Version	Date	Person	Page	Description of Change
01				

3. LINKS TO RELEVANT INFORMATION IN THE ONLINE NSSDC INFORMATION SYSTEM:
[NOTE: ANY OF THE INFORMATION FIELDS MIGHT BE BLANK.]
[THE "MATERIALS FOR DISTRIBUTION" FIELD IS HERE CALLED JUST "MATERIALS"]

"Remarks" for spacecraft SCNAME1":
http://nssdc.gsfc.nasa.gov/database/MasterCatalog?sc=1977-102A--remark--

"Materials" for spacecraft SCNAME1":
http://nssdc.gsfc.nasa.gov/database/MasterCatalog?sc=1977-102A--mat--

"Remarks" for SCNAME1 experiment EXNAME1:
http://nssdc.gsfc.nasa.gov/database/MasterCatalog?sc=1977-102A&ex=09--remark--

"Materials" for SCNAME experiment EXNAME1:
http://nssdc.gsfc.nasa.gov/database/MasterCatalog?sc=1977-102&ex=09--mat--

"Remarks" for EXNAME1 data set DSNAME1:
http://nssdc.gsfc.nasa.gov/database/MasterCatalog?ds=SPHE-00677--remark--

"Materials" for EXNAME1 data set DSNAME1:
http://nssdc.gsfc.nasa.gov/database/MasterCatalog?ds=SPHE-00677--mat--

"Remarks" for EXNAME1 data set DSNAME2:
http://nssdc.gsfc.nasa,gov/database/MasterCatalog?ds=SPHE-00677--remark--

"Materials" for EXNAME1 data set DSNAME2:
http://nssdc.gsfc.nasa.gov/database/MasterCatalog?ds=SPHE-00677--mat--

"Remarks" for EXNAME1 data set DSNAME3:

"Materials" for EXNAME1 data set DSNAME3:

"Remarks" for SCNAME1 experiment EXNAME2:

"Materials" for SCNAME1 experiment EXNAME2:

"Remarks" for EXNAME2 data set DSNAME1:
"Materials" for EXNAME2 data set DSNAME1:

"Remarks" for EXNAME2 data set DSNAME2:
"Materials" for EXNAME2 data set DSNAME2:

“Remarks” for spacecraft SCNAME2”:
http://nssdc.gsfc.nasa.gov/database/MaterCatalog?sc=1978-079A--??--

“Materials” for spacecraft SCNAME2:
http://nssdc.gsfc.nasa.gov/database/MaterCatalog?sc=1978-079A--??--

“Remarks” for SCNAME2 experiment EXNAME1:
http://nssdc.gsfc.nasa.gov/database/MaterCatalog?sc=1978-079A&ex=03--??--

“Materials” for SCNAME2 experiment EXNAME1”
http://nssdc.gsfc.nasa.gov/database/MasterCatalog?sc=1978-079A&ex=03--??--

“Remarks” for EXNAME1 data set DSNAME1:
http://nssdc.gsfc.nasa.gov/database/MasterCatalog?ds=SPHE--00011--remark--

“Materials” for EXNAME1 data set DSNAME1:
http://nssdc.gsfc.nasa.gov/database/MasterCatalog?ds=SPHE--00011--remark--

“Remarks” for EXNAME1 data set DSNAME2:
http://nssdc.gsfc.nasa.gov/database/MasterCatalog?ds=SPHE-00014--remark--

“Materials” for EXNAME1 data set DSNAME2:
http://nssdc.gsfc.nasa.gov/database/MasterCatalog?ds=SPHE-00014--remark--

“Remarks” for EXNAME1 data set DSNAME3:

“Materials” for EXNAME1 data set DSNAME3:

“Remarks” for SCNAME2 experiment EXNAME2:

“Materials” for SCNAME2 experiment EXNAME2:

“Remarks” for EXNAME2 data set DSNAME1:

“Materials” for EXNAME2 data set DSNAME1:

“Remarks” for EXNAME2 data set DSNAME2:

“Materials” for EXNAME2 data set DSNAME2:

“Remarks” for data set DSNAME3:

“Materials” for EXNAME data set DSNAME3:

“Remarks” for SCNAME2 experiment EXNAME3:

“Materials” for SCNAME2 experiment EXNAME3:

“Remarks” for EXNAME3 data set DSNAME1:

“Materials” for EXNAME3 data set DSNAME1:

“Remarks” for EXNAME3 data set DSNAME2:

“Materials” for EXNAME3 data set DSNAME2:

=-=-= -
=-=-= -

ALTERNATE OPTION:

For SCNAME2:

“Remarks” for EXNAME1 data set DSNAME2:

http://nssdc.gsfc.nasa.gov/database/MasterCatalog?ds=SPHE-00014--remark--

“Materials” for EXNAME1 data set DSNAME2:

http://nssdc.gsfc.nasa.gov/database/MasterCatalog?ds=SPHE-00014--mat--

can be shown as

“Remarks” for EXNAME1 data set DSNAME2:

http://nssdc.gsfc.nasa.gov/database/MasterCatalog?ds=78-079A-03C--remark--

“Materials” for EXNAME1 data set DSNAME2:

http://nssdc.gsfc.nasa.gov/database/MasterCatalog?ds=78-079A-03C--mat--

=-=-= -
=-=-= -

4. CATALOG MATERIALS:

DATA SET CATALOG #66

RELAY 2
Charged Particle 'A'

64-003A-02A 6 tapes

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

ELECTRON-PROTON DATA, L-ORDERED, TAPE

64-003A-02A

This data set has been restored. There were originally 6 Binary 7-Track, 800 BPI tapes. There is one restored tape. The DR tapes are 3480 cartridges and the DS tapes are 9-track, 6250 BPI. The tapes were created on an BESYS computer. The DR and DS numbers along with the corresponding D numbers and the time spans are as follows:

DR#	DS#	D#	FILES	TIME SPAN
DR03108	DS03108	D00119	1-63	01/21/64 - 01/31/65
		D00120	64-102	01/21/64 - 01/31/65
		D00121	103-127	01/21/64 - 01/31/65
		D00122	128-190	01/01/65 - 12/31/65
		D00123	191-232	01/01/65 - 12/31/65
		D00124	233-254	01/01/65 - 12/31/65

RELAY 2

ELECTRON-PROTON DATA, L-ORDERED, TAPE

64-003A-02A

This data set has been restored. There were originally 6 Binary 7-Track, 800 BPI tapes. There is one restored tape. The DR tapes are 3480 cartridges and the DS tapes are 9-track, 6250 BPI. The tapes were created on an BESYS computer. The DR and DS numbers along with the corresponding D numbers and the time spans are as follows:

DR#	DS#	D#	FILES	TIME SPAN
DR03108	DS03108	D00119	1-63	01/21/64 - 01/31/65
		D00120	64-102	01/21/64 - 01/31/65
		D00121	103-127	01/21/64 - 01/31/65
		D00122	128-190	01/01/65 - 12/31/65
		D00123	191-232	01/01/65 - 12/31/65
		D00124	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 Short	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 short	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 part.	1/01/65 -12/31/65	2 of 2

* 4/22/73. 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.

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 2I5, two integers which are right-justifield 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-00A

64-003A-00A

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 coded 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.

<u>Multireel Tapes</u>: 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 bbELECTRØNbDATAbTAPEbFØRb12/01/62b(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	776500120102	005165436130	007100036543	656323514645	006461236100	2[illegible]1[illegible]7650066
0007	465100010221	120121060200	346461300003	030574004000	120321030121	06[illegible]0346461
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 (775000120104) 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 (775000121206) indicates that the logical record contains

RECORD NO. 0001

0001	775000120104	201431463146	176741166710	211455100337	203607653204
0007	202421075947	000000000000	202527431501	000000000000	202621276114
0013	174746022545	207426172532	032223000440	775000120104	201431463146
0019	211465280456	000000000000	000000000000	000000000000	000000000000
0025	000000000000	000000000000	000000000000	177462513447	206734463704
0031	775000120104	201431463146	177420513447	211502157137	000000000000
0037	000000000000	205[illegible]677735	000000000000	000000000000	000000000000
0043	175[illegible]	207427[illegible]	000000000000	000000000000	000000000000
0049	211[illegible]133	200661424560	032323000000	775000120104	201431463146
0055	211[illegible]444	177463777430	175702030507	176641560217	177607553534
0061	177510214501	201431463146	177162562023	176650572712	207417137726
0067	775000120104	176422341173	211610104100	[illegible]	[illegible]
0073	177412[illegible]037	207434462494	000000000000	175401104640	203463002417
	177431630653	000000000000	000000000000	000000000000	201431463146
	211311141143	000000000000	000000000000	000000000000	000000000000
0085	175404422576	000000000000	175402565767	176752707515	206770524034
0091	775000120104	201431463146	176760101422	211521006705	000000000000
0097	000000000000	200426234723	000000000000	177455445532	000000000000
0103	176566420576	207411104161	000000000000	775000120104	201431463146
0109	211523[illegible]354	000000000000	000000000000	000000000000	000000000000
0115	175[illegible]322	000000000000	176494204237	177401370133	207431504461
0121	775000120104	201431463146	176742337633	211524130303	000000000000
0127	000000000000	000000000000	000000000000	000000000000	177400000000
0133	175475[illegible]4654	200[illegible]1243	032223000000	775000120104	201431463146
0139	211524110531	000000000000	175592804433	000000000000	200431031654
0145	177642401503	201432543667	177710220132	000000000000	206655110442
	775000120104	201431463146	176740710102	211550071000	000000000000
	203713230643	000000000000	203556423771	000000000000	202563775760
	174682341554	207[illegible]594522	032223000440	775000120101	

RECORD NO. 0002

	775000120104	201431463146	176741206677	211511145413	203440702723
	202414276038	000000000000	202434210704	000000000000	203414637436
	174791731401	200[illegible]0645135	032223000000	775000120104	201431463146
0019	211532051014	000000000000	000000000000	000000000000	000000000000
0025	000000000000	000000000000	000000000000	176761354451	203761126535
0031	775000120104	201431463146	176760054441	211434020642	000000000000
0037	000000000000	000000000000	000000000000	000000000000	000000000000
0043	176566[illegible]4	207413137320	032223000000	775000120104	201431463146
0049	211543531354	000000000000	000000000000	177462553753	000000000000
0055	000000000000	200610421046	000000010000	174576031707	206731701523
0061	775000120104	201431463146	176740131102	211550031614	202513247131
0067	200420421411	000000000000	200707511736	000000000000	222561047000
0073	174452[illegible]	201[illegible]470321	032223000000	775000120104	201431463146
0079	211552[illegible]	203[illegible]425247	176624343765	201473471421	176434621660
0085	176400[illegible]	223404342550	176464194410	173497550241	200446591021
0091	775000120104	201431463146	176703425	211555574552	203443467063
0097	202447[illegible]	000000000000	176425774157	000000000000	222501027417
0103	176520[illegible]	206204174237	032223000000	775000120104	201431463146
0109	211557[illegible]	000000000000	000000000000	000000000000	176429440491
0115	175[illegible]	000000000000	000000000000	173605661104	205541712370
0121	775000120104	201431463146	176743730013	211557054482	000000000000
0127	000000000000	176430480051	000000000000	175712751671	000000000000
0133	176[illegible]104	206[illegible]537504	031[illegible]	775000120104	201431463146
0139	211561[illegible]216	000000000000	000000000000	000000000000	000000000000
0145	000000000000	222[illegible]043000	000000000000	173415464071	206573660316
0151	775000120104	201431463146	176747301241	211564055271	000000000000
0157	202400[illegible]742	000000000000	202462475433	000000000000	217777120000
0163	175[illegible]	206[illegible]111346	032223000000	775000120101	

RECORD NO. 0003

0001	775000120104	201431463146	176750741021	211[illegible]116702	202702257374

0[illegible]	[illegible]	000000000000	200755407242	[illegible]	221610155505
0[illegible]	176[illegible]	206[illegible]416277	032223000000	775000120104	201431463146
[illegible]	[illegible]	000000000000	000000000000	201757[illegible]453	000000000000
[illegible]	[illegible]	231[illegible]20164	000000000000	172[illegible]2573473	206[illegible]73401
0[illegible]	7[illegible]				

END OF FILE

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	77500012120	20153314031745	20154671154	00007600000	00053300000	00010000000
0007	00013300000	77500012040	00007600000	00054000000	00000000000	17666742073
0013	17665322712	17643511527	20154671165	20153541217	20154611165	21198307613
0019	21153376105	21153305776	00061000000	00006700000	00033000000	00052704170
0025	00054337550	00067240021	17645250431	17642600642	17645250431	17742631070
0031	17673176024	17641710350	20000000000	20007714001	01000000100	21043000000
0037	62174303517	21440554121	21304540000	62174303517	21750000057	21200000000
0043	62174303517	21001731174	21171660457	62174303517	21577247076	17550103721
0049	00055417000	20170245275	77500012120	00007700000	00033000000	00007000100
0055	17574744332	17642101677	17645220007	17640142150	17645167457	17641103251
0061	17644247727	20153341217	20154324774	20154472274	20153421727	20153215370
0067	20153313015	20154101223	21160707566	21160707666	21160707623	21160707274
0073	21160707000	21160707006	21160707112	00143100550	00137400247	00111000550
0079	00146000000	00130102572	00148100550	00121000553	00070000000	00070012870
0085	00065210462	00074011835	00070765135	00073617400	00066150203	17642400002
1	17642110320	17644746362	17642171540	17642650166	17642013400	17645667567
7	17640027000	17641516040	17566225010	17171315200	17646412220	17542017770
0103	17547763740	00700000000	00700000003	00500000003	00700000105	00710000000
0109	00700000000	00700000000	21540424667	21500507514	21375711112	21541713334
0115	21447000000	21542024744	21435753334	21767442223	21743257035	21743133333
0121	21772333334	21763576223	21700064160	21750027334	21746241111	21746002450
0127	21691415555	21747342222	21700278111	21750247654	21667244445	21666411111
0133	21697412742	21561255555	21660576222	21451137334	21660447655	21641001171
0139	20340342773	20177075370	20263724360	20247204717	17754012655	20251427631
0145	20352021467	77500012010	00007700000	00015100000	00000100000	17664591744
0151	20153347331	21172506246	00042402473	00071522535	17642033462	17650065430
0157	00400000001	21243236023	21567344465	21460224744	21642103373	17762171107
0163	77470012102	00007700000	00015000000	77500012104		

RECORD NO. 0002

0001	77500012104	00001000000	17642503525	20153412374	21172707197	00037100774
0007	00041013342	17602650466	17671470320	00001000009	21070041710	21441175427
0013	21341637337	21250056427	17544031320	77500012104	00007700000	00715400000
0019	00041000000	17641437240	20154121223	21173000241	00037100474	00000103525
0025	17643502204	17601764500	00000000004	21141121613	21473725525	21377730342
0031	21343707707	17657324311	77500012104	00007700000	00010000000	00000100479
0037	17743117707	20154467227	21173407203	00030100249	00049250000	17644637324
0043	17753302214	00000000000	00000000000	20370107707	07000000000	00000000000
0049	00000000000	77500012010	00707000000	00016300000	00000100000	17683513664
0055	20153411727	21173704011	00043602475	00054314251	17642171940	17662261164
0061	00000000000	21076525525	21453625525	21331707070	21261625252	17577332525
0067	77500012104	00007700000	00016700000	00001100000	17740416774	20153463041
0073	21174000144	00037000240	00049471010	17642126707	17750154036	00000000711
0079	00000000000	00000000000	00000000000	00000000000	00000000000	77500012104
0085	00007700000	00017200000	00000100000	17665491247	20153351361	21174000324
0091	00046002477	00053327245	17642013400	17671642544	00300000074	21742232762
0097	21540147576	21261303041	21165017327	17544374124	77500012104	00007700000
0103	00017000000	00000100000	17660360104	20154217370	21175007464	00000007420
0109	00056125057	17545341657	17663743750	00000000004	21160425252	21540737470
0115	21447070707	21355370707	17741550025	77500012104	00007700000	00000000000
1	00000100000	17642103332	20153371036	21176007745	00053200433	00000000464
127	17643176004	17677003124	00000000000	21073252252	21460443443	21354737470
0133	21700416161	17669124277	77500012104	00007700000	65000000000	00000100000
0139	17665314715	17654121747	21137700122	00000002420	60000174335	17542137140
0145	17597435044	00000000000	21163440767	21561302650	21451147321	21354017532
0151	17750012172	17470012102	00007700000	00021100000	00000000000	17663441062
0157	20153544264	21176110154	00060002427	60054435302	17642516256	17667141770
0163	00000000003	21074707070	21530707070	77500012121		

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 } decrement integers

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_0
8	Flag = XXXWYYZZZZVZ in octal digits
9	F4
10	F1
11	F2 in counts/second
12	F3
13	F1B

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

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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	0.4540000E-01
50	371	219	24434	0.6090000E-01
50	381	221	23137	0.5571000E-01
50	391	228	20137	0.5838000E-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	0.9076900E-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	0.7069000E-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