

Data Set Catalog # 228

OG0-5, 3Way Merge data
68-014A-06C 35 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 This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system.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

OGO 5

3 WAY MERGED DATA

68-014A-06C

SPHE-00022

THIS DATA SET HAS BEEN RESTORED. THERE WERE ORIGINALLY 35 7-TRACK, 800 BPI TAPES WRITTEN IN BINARY. THERE ARE THREE RESTORED TAPES. THE ORIGINAL TAPES WERE CREATED ON A CDC 6600 COMPUTER. THERE ARE THREE RESTORED TAPES. THE DR AND DS TAPES ARE 9-TRACK, 6250 BPI. THE DR AND DS NUMBERS ALONG WITH THE CORRESPONDING D NUMBERS AND TIME SPANS ARE AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
DR000838	DS000838	DD010709	1	05/23/68 - 05/24/68
		DD010710	2	05/28/68 - 05/29/68
		DD010699	3	06/05/68 - 06/06/68
		DD010698	4	06/10/68 - 06/11/68
		DD010711	5	08/04/68 - 08/05/68
		DD010712	6	08/06/68 - 08/07/68
		DD010714	7	08/09/68 - 08/10/68 (a)
		DD010713	8	08/12/68 - 08/13/68 (b)
		DD010700	9	08/15/68 - 08/15/68
		DD010715	10	08/17/68 - 08/18/68
		DD010716	11	08/19/68 - 08/21/68
		DD010717	12	08/22/68 - 08/23/68
		DD010718	13	08/25/68 - 08/25/68
		DD010719	14	08/28/68 - 08/28/68
		DD010720	15	08/30/68 - 08/31/68
		DD010721	16	09/01/68 - 09/03/68
DR000839	DS000839	DD010722	1	09/03/68 - 09/05/68
		DD010723	2	09/07/68 - 09/08/68
		DD010724	3	09/09/68 - 09/10/68
		DD010725	4	09/12/68 - 09/13/68
		DD010726	5	09/14/68 - 09/15/68 (c)
		DD010727	6	09/17/68 - 09/18/68 (d)
		DD010728	7	09/21/68 - 09/23/68
		DD010729	8	09/23/68 - 09/24/68
		DD010730	9	09/25/68 - 09/27/68
		DD010731	10	09/27/68 - 09/28/68
		DD010732	11	09/30/68 - 10/01/68

68-014A-06C

DR#	DS#	D#	FILES	TIME SPAN
DR000840	DS000840	D0010701	1	04/10/69 - 04/12/69
		D0010702	2	04/12/69 - 04/15/69
		D0010703	3	04/15/69 - 04/18/69
		D0010704	4	04/18/69 - 04/21/69
		D0010705	5	04/21/69 - 04/24/69
		D0010706	6	04/24/69 - 04/27/69
		D0010707	7	04/27/69 - 04/29/69
		D0010708	8	04/29/69 - 05/01/69

- (a) D0010714 - read error on record 174, File 1
- (b) D0010713 - read error on record 28, File 1
- (c) D0010726 - read errors on records 20 and 80, File 1
- (d) D0010727 - read errors on records 6, 7, and 8, File 1

UCRL

51314

66-014A-26C

THE LLL ELECTRON AND PROTON SPECTROMETER
ON NASA'S ORBITING GEOPHYSICAL OBSERVATORY V(E)
(THE THREE WAY MERGED TAPE)
(AN ARCHIVAL DATA BASE)

M. M. Zeligman

J. R. Walton

October, 1972

REQ. AGENT
WTJ

RASH NO.
RB3140

ACQ. AGENT
JHK

OGO-5

3 WAY MERGED DATA

68-014A-06C

This data set consists of 35 800 BPI, Binary tapes that were produced on a CDC-6600. These tapes are 7 track and contain 1 file. the records are composed of 724 sixty-bit words where the time is found in the first word of each record.

<u>D#</u>	<u>C#</u>	<u>START</u>	<u>STOP</u>
D-10698	C-08949	6/10/68	6/11/68 6/11
D-10699	C-08950	6/05/68	6/06/68 6/6
D-10700	C-09345	8/15/68	8/15/68
D-10701	C-09346	4/10/69	4/12/69
D-10702	C-09347	4/12/69	4/15/69
D-10703	C-09348	4/15/69	4/18/69 4/15
D-10704	C-09349	4/18/69	4/21/69 4/19, 3/20
D-10705	C-09350	4/21/69	4/24/69
D-10706	C-09351	4/24/69	4/27/69 4/25
D-10707	C-09352	4/27/69	4/29/69
D-10708	C-09353	4/29/69	5/01/69 4/30
D-10709	C-09354	5/23/68	5/24/68
D-10710	C-09355	5/28/68	5/29/68
D-10711	C-09356	8/04/68	8/05/68
D-10712	C-09357	8/06/68	8/07/68
D-10713	C-09358	8/12/68	8/13/68
D-10714	C-09359	8/09/68	8/10/68
D-10715	C-09360	8/17/68	8/18/68 8/18
D-10716	C-09361	8/19/68	8/21/68
D-10717	C-09362	8/22/68	8/23/68
D-10718	C-09363	8/25/68	8/25/68

<u>D#</u>	<u>C#</u>	<u>START</u>	<u>STOP</u>
D-10719	C-09364	8/28/68	8/28/68 28 8/28/
D-10720	C-09365	8/30/68	8/31/68
D-10721	C-09366	9/01/68	9/03/68 9/02/
D-10722	C-09367	9/03/68	9/05/68
D-10723	C-09368	9/07/68	9/08/68
D-10724	C-09369	9/09/68	9/10/68
D-10725	C-09370	9/12/68	9/13/68
D-10726	C-09371	9/14/68	9/15/68
D-10727	C-09372	9/17/68	9/18/68
D-10728	C-09373	9/21/68	9/23/68
D-10729	C-09374	9/23/68	9/24/68
D-10730	C-09375	9/25/68	9/27/68
D-10731	C-09376	9/27/68	9/28/68
D-10732	C-09534	9/30/68	10/01/68

<u>D#</u>	<u>C#</u>	<u>START</u>	<u>STOP</u>
D-10719	C-09364	8/28/68	8/28/68 28 8/78/
D-10720	C-09365	8/30/68	8/31/68
D-10721	C-09366	9/01/68	9/03/68 9/02/
D-10722	C-09367	9/03/68	9/05/68
D-10723	C-09368	9/07/68	9/08/68
D-10724	C-09369	9/09/68	9/10/68
D-10725	C-09370	9/12/68	9/13/68
D-10726	C-09371	9/14/68	9/15/68
D-10727	C-09372	9/17/68	9/18/68
D-10728	C-09373	9/21/68	9/23/68
D-10729	C-09374	9/23/68	9/24/68
D-10730	C-09375	9/25/68	9/27/68
D-10731	C-09376	9/27/68	9/28/68
D-10732	C-09534	9/30/68	10/01/68

THE LLL ELECTRON AND PROTON SPECTROMETER
ON NASA'S ORBITING GEOPHYSICAL OBSERVATORY V(E)
(THE THREE-WAY MERGED TAPE)
(AN ARCHIVAL DATA BASE)*

October, 1972

ABSTRACT

This is a description of a data base that can be used for archival records. The data are combined from three sources and thus the name of the resultant tape: The Three-Way Merged Tape.

The data contained on these tapes came from:

1. The LLL Electron and Proton Spectrometer (Experiment E-06) on NASA's Orbiting Geophysical Observatory V(E). (As described in UCRL 50572, June 2, 1969 by West et. al)
2. Attitude-orbit tapes containing the satellite ephemeris provided by Goddard Space Flight Center.
3. Magnetometer tapes provided by Drs. Paul J. Coleman and C. T. Russell with data from the ^rThiaxial Fluxgate Magnetometer Experiment (Experiment E-14) on OGO-V.

* This work was performed under the auspices of the U. S. Atomic Energy Commission.

BRIEF DESCRIPTION

The three-way merged tapes combine data from:

1. The original data tapes provided by the Goddard Space Flight Center for Electron Spectrometer and Proton Telescope experiment on OGO-5. These tapes were cleaned* and several tapes were time merged to represent an interesting block of time, e.g., an orbit or a particular region of space.
2. The attitude-orbit tapes provided by the Goddard Space Flight Center for OGO-5 experimenters.
3. Magnetometer tapes provided by Drs. Paul J. Coleman and C. T. Russell which contain data averaged over 4.608 seconds of the magnetic field encountered by OGO-5.

Each tape is limited to 2000 records, each^{record} having an identical format. These tapes were generated on a Control Data Corporation 6600 computer.

A CDC 7600 computer code which reads these 3-way merged tapes and produces 20 min plots is attached to this report in Appendix C.

A printout of the first two records of one of these tapes identified as Day 222 is attached to this report in Appendix A.

Each record is composed of 724 sixty-bit words. These words are broken down as follows:

1-4 Control Words

These data are information words from the original spacecraft tapes signifying when, where, and how the data were taken. There is also included from the 3-way merged tape, the record, number, kilobit rate, sync signal, and date generated.

5-124 Selected Attitude-Orbit Data

These data concern the position of the spacecraft with respect to time, sun, distance from earth, and the computed magnetic field.

* To clean a tape is to correct or remove erroneous information, i.e., wrong year, date or data.

¹⁸⁸
125-~~126~~ Time Data

These data are the corrected time values associated with the readout of the detector points.

189-316 Detector Data

These words are used for the count rates (counts/sec) from each of the 36 detectors on board this experiment.

317-356 OPEP Scan Data

357-384 OPFP Shaft Sine Data

385-412 OPEP Shaft Cosine Data

These three sets of data are used to compute the control look angle of the spectrometer.

413-416 Add-On Data

A few words to record data on AC magnetic field fluctuation and electric field sensor. These data were provided by Drs. E. Smith and F. Scarf, respectively.

417-608 Magnetometer Data

These data record the x, y, and z components of the measured magnetic field in gammas.

609-640 R Values

641-672 L Values

673-704 Magnetic-Latitude Values

These three sets of data values were computed from the attitude-orbit data records.

705-708 Main-Body Commutator Words. E-6 experiment, counting data.

709-716 OPEP Commutator Words. E-6 experiment, status.

717-724 Subcommutators 2 and 3. Spacecraft functions.

The code used to generate the 3-way merged tapes is attached to this report in Appendix B.

DETAILED DESCRIPTION

The 3-way merged tapes combine data from: 1) The original data tapes provided by the Goddard Space Flight Center for the Electron Spectrometer and Proton Telescope experiment on OGO-5, or from cleaned-up or time merged versions of these tapes; 2) the attitude-orbit tapes provided by the Goddard Space Flight Center for OGO-5 experimenters; and 3) magnetometer tapes provided by Drs. Paul J. Coleman and C. T. Russell which contain data averaged over 4.608 seconds of the vector magnetic field encountered by OGO-5.

The 3-way merged tapes are written at 556 "bits" per inch density on 7-track tape, 6 data tracks plus a parity track, in odd-parity binary mode. The nominal 2400-foot half-inch tapes are limited to 2000 records per tape. The end of the records is marked by 3 end-of-file marks; there are no other end-of-file marks on the tapes.

Each record contains 724 sixty-bit words and is followed by a $3/4$ inch record gap (the length of each record plus gap is about 13.77 inches or 1.145 feet).

The data acquisition rates of the original spacecraft tapes were 1, 8, or 64 kilobits per second. In the 3-way merged tapes, the rates are restricted to 1 or 2 kilobit. The 8- and 64-kilobit data records are reduced to 2-kilobit equivalent.

For 8-kilobit original data, time values in the 3-way merged records are taken from time values starting in frame 1 and from every 4th frame thereafter, i.e., 1, 5, 9, 13, ... 125. Each record both in the original and in the 3-way merged tape has 128 frames regardless of kilobit rate.

For 64-kilobit original data, time values in the 3-way merged records are taken from time values starting in frame 1 and from every 32nd frame thereafter, i.e. 1, 33, 65, and 97.

The scan angle, shaft sine, shaft cosine, magnetometer values, R value, L value, and magnetic-latitude data contained in the 3-way merged records are computed, interpolated, or taken for the above selected time values for 8-or 64-kilobit original data.

For 8- and 64-kilobit original detector data, the counts were arithmetically averaged without weighting. Whenever the kilobit rate changed, the remainder of the current 3-way merged record was filled with zeros and a new 3-way merged record was started reflecting the new rate.

Bit Numbering

For the ease and convenience of a future programmer to decode these close-packed 3-way merged tapes, the conventional manner of numbering bits is rejected here. Instead the following scheme is used.

The left-most (or highest order) bit in a word or byte is numbered 1. The right-most (or lowest order) bit in a 60-bit word is numbered 60.

The left-most bit in a line of 6 data bits on the tape is numbered 1. The right-most bit is numbered 6.

The bits from the first line of 6 bits read into the computer from the tape are placed in the left-most portion of the first word of the computer storage array. Bit 1 from the tape is read into bit 1 of the first word; bit 6 from the tape is read into bit 6 of the first word. Bit 1 from the second line of 6 bits from the tape is read into bit 7 of the first word. Bit 6 from the tenth line is read into bit 60 of the first word. Bit 1 of the eleventh line of 6 bits from the tape is read into bit 1 of the second word of the computer read storage array.

Signs

The CDC computers use 1's complement arithmetic for negative values. In order that the 3-way merged tapes could be easily read and decoded on other computers, the negative value representation was changed. Negative values were multiplied by -1; and for both integer and floating-point values, bit 1 was changed from 0 to 1 before storage on the tape.

Most of the values stored on the 3-way merged tape are always positive; they do not have a sign bit associated, and the entire byte is available for greater precision.

For those values, integer or floating point, which require a sign bit, the sign bit is always located in bit position 1 of the byte. If this bit 1 is 0 the value is positive; if bit 1 is 1 then the value is negative.

Floating-Point Bytes

Floating point values in 3-way merged tape records occur only in the attitude-orbit data section. The left-most bit, bit 1, is the sign bit; 0 for positive values and 1 for negative values. The following 11 bits, bits 2-12, are used as the exponent. The remaining 28 right-most bits, bits 13-40, are used as the fractional part. The number of fractional bits retain all of the precision present in the original attitude-orbit data records. The exponent is biased by 1717 octal.

Exponent Examples:

Octal		Decimal		Exponent
1716	=	974	=	-1
1717	=	975	=	0
1720	=	976	=	+1

Byte Examples: (only bits 1 thru 24 shown)

Octal		Decimal
1720 4000	= $2^1 * (4/8)$	= + 1.0
5720 4000	= $-2^1 * (4/8)$	= - 1.0
0000 0000	=	0.
1720 1200	= $2^1 * (1/8 + 2/64)$	= + 0.3125

Records

Each 724 sixty-bit word record consists of the following:

Words

1 - 4	Control words
5 - 124	Selected attitude-orbit data
125 - 188	Time data
189 - 316	Detector data
317 - 356	OPEP scan data
357 - 384	OPEP shaft sine data
385 - 412	Open shaft cosine data
413 - 416	Add-on data
417 - 608	Magnetometer data
609 - 640	R Values
641 - 672	L Values
673 - 704	Magnetic-latitude values
705 - 708	Selected main-body commutator words .
709 - 716	Selected OPEP-commutator words
717 - 724	Selected words from subcommutators 2 and 3.

Control Words (1-4):

These 4 sixty-bit words are divided into 20 bytes of 12 bits each, each byte representing a control word. Each control word is a positive integer (no sign bit) and may take values from 0 to $2^{12} - 1$ or from 0 to 4095.

Control Word

- 1 Orbit number
- 2 Year (e.g. 69)
- 3 Day of year (1 to 366)

Control Words, continued

Values from original spacecraft tape:

- 4 Run number
- 5 Reel number
- 6 File number
- 7 Record number
- 8 Kilobit rate:
 - 1 - 1 kb realtime
 - 2 - 8 kb
 - 3 - 64 kb
 - 4 - 1 kb playback
- 9 Sync signal (may take values from 1 to 16)
- 10 Receiving station number

Values for this 3 way merged record:

- 11 Record number
- 12 Kilobit rate:
 - 1 - 1 kb
 - 2 - 2 kb
- 13 Sync signal (1 kb data may take values from 1 to 16, 2 kb data will only have a value of 16)

Values computed from original spacecraft tape:

- 14 Month number (1 to 12)
- 15 Day of month (1 to 31)
- 16 Number of days since launch
- 17 Error signal
 - 1 - Parity error in reading original spacecraft tape
 - 2 - Word-count error in reading original spacecraft tape
 - 3 - Record consist entirely of fill data
 - 4 - No main-body sync signal in this record

Control Words, continued

17 Error signal continued

- 5 - Main-body sync signal shifted
- 6 - Main-body ground signal shifted
- 7 - Both main-body sync and ground signals shifted

Errors 1 through 4 will not occur when the 3-way merged tapes were produced from time merged or cleaned-up spacecraft tapes.

Data on date the 3-way merged tape was generated:

- 18 Day (1 to 31)
- 19 Month (1 to 12)
- 20 Year (e.g. 1972)

Selected Attitude-Orbit Data (5-124):

These 120 sixty-bit words are divided into 4 groups of 30 sixty-bit words (5-34, 35-64, 65-94, 95-124). Each group has identical format. These 4 groups represent 4 sets of selected attitude-orbit data spaced 1 minute apart and taken directly from the attitude-orbit data records without interpolation.

The first record, at the start of tape generation, will have non-zero values in each of the four groups. Subsequent records may have 0, 2, or 4 groups of non-zero values (1 or 3 groups may occur at the end of an orbit).

In the following table, the 60-bit words are renumbered for convenience. Word 1 in the table corresponds to words 5, 35, 65, and 95 on the 3-way merged tape. Word 30 corresponds to words 34, 64, 94, and 124.

No.	Value	OGO A-O Word	60 Bit Word	Bits	Byte Length	Sign Bit
1	Seconds, universal	2	1	1 - 30	30	None
2	Seconds, local	3-5	1	31 - 60	30	None
3	R Value	---	2	1 - 20	20	None
4	L Value	78	2	21 - 40	20	21
5	Magnetic Latitude	77	2	41 - 60	20	41
6	Phi, GSE (azimuth)	----	3	1 - 20	20	1
7	Theta, GSE (latitude)	----	3	21 - 40	20	21
8	Phi, GSM	----	3	41 - 60	20	41
9	Theta, GSM	----	4	1 - 20	20	1
10	Right Ascension	6	4	21 - 40	20	21
11	Declination	7	4	41 - 60	20	41
12	Latitude	17	5	1 - 20	20	1
13	Longitude	18	5	21 - 40	20	21
14	Paddle Angle	121	5	41 - 60	20	41
15	B/B ₀	80	6	1 - 20	20	None
16	B	79	6	21 - 47	27	None
17	Flag	----	6	48 - 60	13	None
18	Position Vector	8	7	1 - 40	40	1
19		8	7	41 - 60 +	40	41
			8	1 - 20		
20		10	8	21 - 60	40	21
21	Solar Vector	14	9	1 - 40	40	1
22		15	9	41 - 60 +	40	41
			10	1 - 20		
23		16	10	21 - 60	40	21

all items well described in "OGO Attitude
Computations" GSFC X564-66-90 Mar 66

Table continued

<u>No.</u>	<u>Value</u>	<u>000 A-0 Word</u>	<u>60 Bit Word</u>	<u>Bits</u>	<u>Byte Length</u>	<u>Sign Bit</u>
24	B Vector	85	11	1 - 40	40	1
25		86	11	41 - 60 +	40	41
			12	1 - 20		
26		87	12	21 - 60	40	21
27	GEI Transformation	49	13	1 - 40	40	1
28		52	13	41 - 60 +	40	41
			14	1 - 20		
29		55	14	21 - 60	40	21
30		50	15	1 - 40	40	1
31		53	15	41 - 60 +	40	41
			16	1 - 20		
32		56	16	21 - 60	40	21
33		51	17	1 - 40	40	1
34		54	17	41 - 60 +	40	41
			18	1 - 20		
35		57	18	21 - 60	40	21
36	GSE Transformation	100	19	1 - 40	40	1
37		101	19	41 - 60 +	40	41
			20	1 - 20		
38		102	20	21 - 60	40	21
39		103	21	1 - 40	40	1
40		104	21	41 - 60 +	40	41
			22	1 - 20		
41		105	22	21 - 60	40	21
42		106	23	1 - 40	40	1
43		107	23	41 - 60 +	40	41
			24	1 - 20		
44		108	24	21 - 60	40	21

Table continued

<u>No.</u>	<u>Value</u>	<u>OGO A-0 Word</u>	<u>60 Bit Word</u>	<u>Bits</u>	<u>Byte Length</u>	<u>Sign Bit</u>
45	GSM Transformation	109	25	1 - 40	40	1
46		110	25	41 - 60 +	40	41
			26	1 - 20		
47		111	26	21 - 60	40	21
48		112	27	1 - 40	40	1
49		113	27	41 - 60 +	40	41
			28	1 - 20		
50		114	28	21 - 60	40	21
51		115	29	1 - 40	40	1
52		116	29	41 - 60 +	40	41
			30	1 - 20		
53		117	30	21 - 60	40	21

Items 1 (seconds) through 16 (B) are stored as integers. These integers are to be converted to floating point and then divided by 1000 to obtain the item values.

Items 18 (position vector) through 53 are 40-bit bytes in floating point. The left-most bit (bit 1) is the sign bit and has the value 0 if positive or 1 if negative. The next 11 bits (2-12) are the exponent. The remaining right-most 28 bits (13-40) are the fractional part.

Item 4 (L value) has a sign bit (bit 1 of the byte of item 4), L values of course are always positive. If this sign bit has a value of 0, then the GEI-transformation function (items 27-35) was normally taken from the actual body roll, pitch, and yaw axis of words 49-57 from the attitude-orbit tape data records. If this sign bit has a value of 1, then actual body data were missing and the ideal body roll, pitch, and yaw-axis data were substituted, if available, for the GEI-transformation function.

In items 27-35, the rows of the actual body roll, pitch, and yaw vectors have been changed to columns of the GEI-transformation function (see table above). The GEI, GSE, and GSM-transformation matrices can now be handled identically in operations on vectors.

Item 17 (flag) is a 13-bit integer and was obtained from error words 123-125 from the attitude-orbit tape data records. If A-0 word 123 has a value of -1.0. then the left-most bit (bit 1) of this integer has a value of 1; if not, it has a value of 0. The integer value found in the right-most 6 bits of A-0 word 124 are stored in bits 2-7 of item 17. The integer value found in the right-most 6 bits of A-0 word 125 are stored in bits 8-13 of item 17.

The OGO-5 A-0 word in the table legend is the number of the work^d in the attitude-orbit-tape data records (see pages 96-107 of the "Data Processing Plan for Eccentric Orbiting Geophysical Observatory (OGO-E), January 1968, Goddard Space Flight Center, Greenbelt, Maryland, preprint X-565-68-19).

Time Data (125-188)

These 64 sixty-bit words are divided into 128 bytes of 30 bits each. Each byte is a positive integer (no sign bit) representing the milliseconds of day. The first time value is stored in the left-most 30 bits (bits 1-30) of the first 60-bit word. The second time value is stored in the right-most 30 bits (bits 31-60) of the first 60-bit word. The third time value is stored in the left-most 30 bits (bits 1-30) of the second 60-bit word.

For 1-kilobit data, these 128 bytes represent the 128 millisecond-of-day values (one time value for each of the 128 frames) stored in the original spacecraft-tape data record.

Eight-kilobit and 64-kilobit data from the original spacecraft-tape data records have been averaged to a 2-kilobit equivalent rate in the 3-way merged tapes.

Each of the 36 detectors accumulates counts for 4 frames before readout; readout occurring in the fourth frame. The time value to be associated with the readout should be the median of the start of the count and the end of the count times, and thus it is less than the time value of the frame in which readout occurred. Each of the main detectors (e.g. E1) readout 32 times in 128 frames of the data record. The frame associated with their readout can be determined by the main-body (m.b.) sync signal. This m.b. sync signal can vary from record to record and rarely it varies within a record. Most often it is constant for a large number of records, sometimes for an entire original file of records. The position of the original m.b. sync signal is given by control word 9.

For 8-kilobit original data, the time values stored on the 3-way merged tapes are taken starting in frame 1 and from every 4th frame thereafter, i.e., 1, 5, 9, 13 125, of the original spacecraft data record. Thus 32 time values are stored for each original data record. Four such original data records are reduced to provide one 3-way merged record.

For 64-kilobit original data, the time values stored on the 3-way merged tapes are taken starting in frame 1 and from every 32nd frame thereafter, i.e., 1, 33, 65, and 97, of the original spacecraft-data record. Thus 4 time values are stored for each original data record. Thirty-two such original data records are reduced to provide one 3-way merged record.

For original 8-and 64-kilobit data, the time values chosen for the 2-kilobit equivalent rate records were selected to cause the least overall error in plotting counting rates vs. time without making individual time corrections. For detailed plots or readouts these corrections will have to be made. These corrections have been made in the 20 minute plot code in Appendix C. Arrays of constants used in these corrections occur in subroutine CONST2. The corrections occur in the last part of subroutine PSC DATA.

Detector Data (189-316)

These 128 sixty-bit words are divided into 640 twelve-bit bytes. No sign bit occurs. Each byte represents a detector word. The format and evaluation of these bytes differ from the original spacecraft detector words.

For each 12-bit byte, the left-most 2 bits (1 and 2) are not used and, will always be 0. The next 4 bits (3-6) are the positive exponent. The right-most 6 bits (7-12) are a positive integer. The byte is evaluated by multiplying the integer by a power of 2 given by the exponent. For example:

<u>Octal</u>		<u>Decimal</u>		<u>Decimal</u>
0000	→	0		
0001	→	$2^0 * 1$	=	1
0110	→	$2^1 * 8$	=	16
0277	→	$2^2 * 63$	=	252

Detector word 1 consists of the left-most 12 bits (1-12) of the first 60 bit word. Detector word 5 consists of the rightmost 12 bits (49-60) of the first 60 bit word. Detector word 6 consists of the left-most 12 bits (1-12) of the second 60-bit word. This pattern continues for 640 bytes or detector words.

The detector words are assigned to the 36 detectors as follows:

<u>Detector</u>	<u>Detector Words</u>	<u>Number</u>
E1	1 - 32	32
E2	33 - 64	32
E3	65 - 96	32
E4	97 - 128	32
E5	129 - 160	32
E6	161 - 192	32
E7	193 - 224	32
E8	225 - 240	16
EB1	241 - 248	8
EB2	249 - 256	8
EB3	257 - 264	8
EB4	265 - 272	8
EB5	273 - 280	8
EB6	281 - 288	8
EB7	289 - 296	8
P1	297 - 328	32
P2	329 - 360	32
P3	361 - 392	32
P4	393 - 424	32
P5	425 - 456	32
P6	457 - 488	32
P7	489 - 504	16

Table continued

<u>Detector</u>	<u>Detector Words</u>	<u>Number</u>
PB1	505 - 512	8
PB2	513 - 520	8
PB3	521 - 528	8
PB4	529 - 536	8
PB5	537 - 544	8
PB6	545 - 552	8
A1	553 - 568	16
A2	569 - 576	8
A3	577 - 584	8
AB1	585 - 592	8
AB2	593 - 600	8
AB3	601 - 608	8
O1	609 - 624	16
O2	625 - 640	16

OPEP Scan Angle (317-356)

These 40 sixty-bit words are divided into 128 eighteen-bit bytes. Each byte is a positive integer (no sign bit) and corresponds to the scan angle for one frame. The last 96 bits in this block are not used and are 0. 4

Each integer byte is evaluated by converting to floating point and dividing by 100. The scan angle may assume values from 0 to 360 degrees.

<u>Scan Word</u>	<u>60 Bit Word</u>	<u>Bits</u>
1	1	1 - 18
2	1	19 - 36
3	1	37 - 54
4	1	55 - 60 +
	2	1 - 12
5	2	13 - 30
6	2	31 - 48
7	2	1 - 6
8	3	7 - 24
9	3	25 - 42
10	3	43 - 60
11	4	1 - 18
121	37	1 - 18
122	37	19 - 36
123	37	37 - 54
124	37	55 - 60 +
	38	1 - 12
125	38	13 - 30
126	38	31 - 48
127	38	49 - 60 +
	39	1 - 6
128	39	7 - 24
	39	25 - 60 not used
	40	1 - 60 not used

OPEP-Shaft-Sine Words (357-384)

These 28 sixty-bit words are divided into 128 twelve-bit bytes. Each byte or shaft-sine word is a positive integer (no sign bit) and may take values from 0 to 255. The last 144 bits of this block are not used and are 0. The shaft-sine words are evaluated in a manner identical to the shaft-sine words of the original spacecraft data records.

<u>Shaft Sine Word</u>	<u>60 Bit Word</u>	<u>Bits</u>
1	1	1 - 12
2	1	13 - 24
3	1	25 - 36
4	1	37 - 48
5	1	49 - 60
6	2	1 - 12
126	26	1 - 12
127	26	13 - 24
128	26	25 - 36
	26	37 - 60 not used
	27	0 - 60 not used
	28	0 - 60 not used

OPEP-Shaft-Cosine Words (385-412)

These 28 sixty-bit words are divided into 128 twelve-bit bytes. Each byte or shaft-cosine word is a positive integer (no sign bit) and may take values from 0 to 255. The last 144 bits of this block are not used and are 0. The shaft-cosine words are evaluated in a manner identical to the shaft-cosine words of the original spacecraft data records.

<u>Shaft Cosine Word</u>	<u>60 Bit Word</u>	<u>Bits</u>
1	1	1 - 12
2	1	13 - 24
3	1	25 - 36
4	1	37 - 48
5	1	49 - 60
6	2	1 - 12
126	26	1 - 12
127	26	13 - 24
128	26	25 - 36
	26	37 - 60 not used
	27	0 - 60 not used
	28	0 - 60 not used

Add-On Data (413-416)

The first 60-bit word of this block is divided into 2 thirty-bit bytes. Each byte is a positive integer (no sign bit). Each byte is evaluated by converting to floating point and dividing by 1000. The last three words of this block are not used and are 0.

<u>Add-On Word</u>	<u>60 Bit Word</u>	<u>Bits</u>
AC Magnetic Field Fluctuation	1	1 - 30
Electric Field Sensor	1	31 - 60
	2	1 - 60 not used
	3	1 - 60 not used
	4	1 - 60 not used

Coleman's Magnetometer Data (417-608)

These 192 sixty-bit words are divided into 384 thirty-bit bytes. The 384 thirty-bit bytes are further separated into 128 sets of 3 thirty-bit bytes corresponding to the x, y, and z components of the magnetic ~~field~~ ^{FIELD}. These magnetic-field components were computed by vector interpolation of Coleman's 4.608-second-average magnetometer data. The first or left-most bit in each byte is a sign bit which is 0 for positive values and 1 for negative values. The remainder of each byte (bits 2-30) is an integer. The integer part of each byte is evaluated by converting to floating point and dividing by 100 yielding values in gamma.

<u>Magnetometer</u> <u>Word</u>	<u>60 Bit</u> <u>Word</u>	<u>Bits</u>	<u>Sign Bit</u>	<u>Value</u>	<u>Frame</u>
1	1	1 - 30	1	EX	1
2	1	31-60	31	BY	1
3	2	1 - 30	1	BZ	1
4	2	31 - 60	31	EX	2
5	3	1 - 30	1	EY	2
6	3	31 - 60	31	BZ	2
7	4	1 - 30	1	EX	3
8	4	31 - 60	31	BY	3
9	5	1 - 30	1	BZ	3
10	5	31 - 60	31	EX	4
11	6	1 - 30	1	BY	4
12	6	31 - 60	31	BZ	4
379	190	1 - 30	1	EX	127
380	190	31 - 60	31	BY	127
381	191	1 - 30	1	BZ	127
382	191	31 - 60	31	EX	128
383	192	1 - 30	1	BY	128
384	192	31 - 60	31	BZ	128

R Values (609-640)

These 32 sixty-bit words are divided into 128 fifteen-bit bytes. Each byte is a positive integer (no sign bit) and is evaluated by converting to floating point and dividing by 1000. The R values were computed by vector interpolation of the position vectors of the attitude-orbit data records and division of the root mean square of the sum of the resultant components by 6371.0.

<u>R Value</u>	<u>60 Bit Word</u>	<u>Bits</u>
1	1	1 - 15
2	1	16 - 30
3	1	31 - 45
4	1	46 - 60
5	2	1 - 15
125	32	1 - 15
126	32	16 - 30
127	32	31 - 45
128	32	46 - 60

L Values (641-672)

These 32 sixty-bit words are divided into 128 fifteen-bit bytes. Each byte is a positive integer (no sign bit) and is evaluated by converting to floating point and dividing by 1000. The L values were computed by linear interpolation of the L values of the attitude-orbit data records.

<u>L Value</u>	<u>60 Bit Word</u>	<u>Bits</u>
1	1	1 - 15
2	1	16 - 30
3	1	31 - 45
4	1	46 - 60
5	2	1 - 15
125	32	1 - 15
126	32	16 - 30
127	32	31 - 45
128	32	46 - 60

Magnetic-Latitude Values (673-704)

These 32 sixty-bit words are divided into 128 fifteen-bit bytes. The first or left-most bit of each byte is a sign bit which is 0 for positive values and 1 for negative values. The remainder of the byte (bits 2-15) is an integer. The integer part of the byte is evaluated by converting to floating point and dividing by 100. The magnetic latitude values were computed by linear interpolation of the magnetic latitude values of the attitude-orbit data records.

<u>Magnetic Latitude Value</u>	<u>60 Bit Word</u>	<u>Bits</u>	<u>Sign Bit</u>
1	1	1 - 15	1
2	1	16 - 30	16
3	1	31 - 45	31
4	1	46 - 60	46
5	2	1 - 15	1
125	32	1 - 15	1
126	32	16 - 30	16
127	32	31 - 45	31
128	32	46 - 60	46

Main-Body-Commutator Analog Words (705-708)

These 4 sixty-bit words are divided into 12 twelve-bit bytes. The bytes are positive integers (no sign bit) and may take values from 0 to 255. The bytes are evaluated by converting to floating point and multiplying by 0.02 yielding values in Volts. These bytes of main-body-commutator words are taken from the first cycle (first 16 frames) of a spacecraft data record; they are intended to be a sampling. The last 96 bits in this block are not used and are 0.

Main Body
Commutator

Word	Function	60 Bit Word	Bits
1	Pulse Generator	1	1 - 12
2	Equipment Group No.	1	13 - 24
3	Shift Register High Voltage	1	25 - 36
4	1.9 Volt Monitor	1	37 - 48
5	Main Body Temperature	1	49 - 60
6	Pulse Generator	2	1 - 12
7	4.5 Volt Monitor	2	13 - 24
8	12 Volt Monitor	2	25 - 36
9	6.3 Volt Monitor	2	37 - 48
10	-6 Volt Monitor	2	49 - 60
11	Ground	3	1 - 12
12	Sync	3	13 - 24
		3	25 - 60 not used
		4	1 - 60 not used

✓
OPEP-Commutator Analog Words (706-716)⁷⁰⁶

These 8 sixty-bit words are divided into 32 twelve-bit bytes. The bytes are positive integers (no sign bit) and may take values from 0 to 255. The bytes are evaluated by converting to floating point and multiplying by 0.02 yielding values in volts. These OPEP-commutator analog words are those contained in a single original-data record at 1 kilobit. For 8- and 64-kilobit original data reduced to 2-kilobit equivalent, these words are from the first record in each set of records to be reduced. The last 96 bits in this block are not used and are 0.

OPEP-Commutator Analog Words, continued

OPEP Commutator Analog Word	Function	60 Bit Word	Bits	
1	Sync	1	1 - 12	
2	Ground	1	13 - 24	
3	Hall effect probe	1	25 - 36	HE-1
4		1	37 - 48	HE-2
5	+ 6.3 Volt Monitor	1	49 - 60	
6	Current Monitor	2	1 - 12	E1
7		2	13 - 24	B1 B2
8		2	25 - 36	E2
9		2	37 - 48	E3
10		2	49 - 60	B3
11		3	1 - 12	E4
12		3	13 - 24	B4
13		3	25 - 36	E5
14		3	37 - 48	B5
15		3	49 - 60	E6
16		4	1 - 12	B6
17		4	13 - 24	E7
18		4	25 - 36	B7
19		4	37 - 48	DM1
20		4	49 - 60	DZ
21		5	1 - 12	D1
22		5	13 - 24	D2
23		5	25 - 36	D3
24		5	37 - 48	D4
25	High Voltage	5	49 - 60	HV1
26		6	1 - 12	HV2
27	Low Field Magnet Temp.	6	13 - 24	IMT1
28	High	6	25 - 36	HMT1
29	Low	6	37 - 48	IMT2
30	High	6	49 - 60	HMT2
31	+ 12 Volt Monitor	7	1 - 12	
32	Ground	7	13 - 24	
		7	25 - 60	not used
		8	1 - 60	not used

Sub-Commutators-2 and-3 Analog Words (714-724)

These 8 sixty-bit words are divided into 36 twelve-bit bytes. The bytes are positive integers (no sign bit). The first 35 bytes have integer values from 0 to 255 and are evaluated by converting to floating point and multiplying by 0.02 yielding values in volts. The 36th byte is the day of the year. These analog words are taken from the end of an original spacecraft data record. For 8- and 64-kilobit original data reduced to 2-kilobit equivalent, these words are from the first record in each set of records to be reduced. The last 48 bits in this block are not used and are 0.

Sub Commutators 2 and 3 Analog Words	Function	60 Bit Word	Bits
1	Pitch Error D (98,25)	1	1 - 12
2	D (98,89)	1	13 - 24
3	Roll Error D (98,26)	1	25 - 36
4	D (98,90)	1	37 - 48
5	Yaw Error D (98,42)	1	49 - 60
6	D (98,106)	2	1 - 12
7	Drive Motors OPEP Array D (98,49)	2	13 - 24
8	D (98,113)	2	25 - 36
9	Horizon Track Check D (98,41)	2	37 - 48
10	D (98,105)	2	49 - 60
11	Horizon Scanners, Head A	3	1 - 12
12	B	3	13 - 24
13	C	3	25 - 36
14	D	3	37 - 48
15	Mode Logic D (98,54)	3	49 - 60
16	D (98,54)	4	1 - 12
17	OPEP Gyro Status D (99,10)	4	13 - 24
18	D (99,74)	4	25 - 36
19	OPEP Gyro Motor Tach. D (99,52)	4	37 - 48
20	D (99,116)	4	49 - 60

Sub Commutators 2 and 3 continued

Sub Commutators 2 and 3		60 Bit	
<u>Analog Words</u>	<u>Function</u>	<u>Word</u>	<u>Bits</u>
21	OPEP Gyro Blanket Temp.	5	1 - 12
22	OPEP Drive Shaft Temp.	5	13 - 24
23	Load Bus Voltage	5	25 - 36
24	E7 Temp.	5	37 - 48
25	E20 Temp.	5	49 - 60
26	E21 Temp.	6	1 - 12
27	F25 Voltage	6	13 - 24
28	F26 Voltage	6	25 - 36
29	F27 Voltage	6	37 - 48
30	F28 Voltage	6	49 - 60
31	F29 Voltage	7	1 - 12
32	F30 Voltage	7	13 - 24
33	F31 Voltage	7	25 - 36
34	Spare	7	37 - 48
35	Spare	7	49 - 60
36	Day of Year (1-366)	8	1 - 12
		8	13 - 60 not used

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68-014A-06C

37
35?

+

37 060-5 H. WEST

FORMAT?

Other doc?

ST + STOP IF WE KNOW $\pm$ seconds and interval we can
estimate coverage.

0001 004601040242	036000010001	000400020006	002600010002	002000060012	014200050010	000436640002	223700004630
0045 012301345740	311374037543	157517204673	307132430153	106445066404	751101172340	462360000000	000540200001
0097 200121251740	426225124276	035750627503	677463723756	175066330461	307656024625	154372361207	463457174145
0145 100770747623	253011036372	000156101717	563054052274	737471277513	635727564366	171542103762	127476252700
0193 050363746427	431457175320	564342747645	025074836353	331110761715	600421056074	774654136743	635440232206
0241 571776671156	507466603123	234363114374	272415170000	000002747313	545341436376	533606001715	600421056074
0289 774654166403	635440223416	571774403172	707472141024	611363332442	633457164205	751012747254	112310036376
0337 350070360002	411040004630	500001346000	311450037612	157521604672	707132430153	132445074004	750301172220
0385 460460000000	000540600001	200360711740	426320470276	035750343403	677463575464	175066326722	307656024626
0433 340372361207	567657174147	361650747624	024233036371	771704721717	563730645274	737316772213	635731366204
0481 171543727154	727476242673	170363746603	240057175303	556662747646	444626136353	211137041715	600405124074
0525 774654157503	635440233124	571776671223	007466603047	424363114371	773615170000	000002747313	545341436376
0577 533606001715	600405124074	774654207143	635440224340	571774406713	507472140335	371363332302	373057164202
0625 613422747254	150515036376	350544240002	576200004631	158301346020	311530037661	157524404672	307132430153
0673 156445101404	747601172060	456560441021	000541400001	200500331740	426413775276	035750054103	677463447046
0721 175066325162	707656024627	524372361207	673657174151	630050747624	076244436371	763420641717	564434212274
0769 737036245613	635740652520	171544054565	227476257645	120363746115	757257175275	541162747646	117725136353
0817 347420261715	600371170074	774654200403	635440234050	571776671267	607466602773	610363114367	474615170000
0865 000002747313	545341436376	533606001715	600371170074	774654230042	635440225262	571774412452	607472137643
0913 305363332141	207257164177	436532747254	207125436376	351222260002	763340004631	646101346040	311604037730
0961 157527004671	707132430153	202445107004	747001171740	454664441021	000542000001	200540571740	426507244276
1009 035747561343	677463320274	175066323423	707656024630	704372361207	777657174154	101530747624	147617436371
1057 755140701717	570253647274	736671433513	635720125004	171543702450	227476243231	220363746573	060657175235
1105 175632747650	105763136353	362207641715	600355237074	774654221203	635440234770	571776671334	207466602720
1153 004363114365	176215170000	000002747313	545341436376	533606001715	600355237074	774654250543	635440226202
1201 571774416221	707472137147	405363331777	353657164174	250102747254	245655036376	351701440002	244505000224
1249 560500022467	050002250005	000225110500	022522050002	253305000225	440500022555	050002256605	000225770500
1297 022610050002	262105000226	320500022643	050002265405	000226650500	022676050002	270705000227	200500022731
1345 050002274205	000227530500	022764050002	277505000230	060500023017	050002303005	000230410500	023052050002
1393 376305000230	740500023105	050002311505	000231270500	023140050002	315105000231	620500023173	050002320405
1441 000232150500	023226050002	323705000232	500500023261	050002327205	000233030500	023314050002	332505000233
1489 360500023347	050002336005	000233710500	023402050002	241305000234	240500023435	050002344605	000234570500
1537 023470050002	350105000235	120500023523	050002351405	000235450500	023556050002	356705000236	000500023611
1585 050002362205	000236330500	023614050002	365505000236	660500023677	050002371005	000237210500	023732050002
1633 374305000237	540500023765	050002377605	000240070500	024020050002	403105000240	420500024053	050002406405
1681 000240750500	024106050002	411705000241	300500024141	050002415205	000241630500	024174050002	420505000242
1729 160500024227	050002424005	000242510500	024262050002	427305000243	040500024315	050002432605	000243370500
1777 024350050002	436105000243	720500024403	050002441405	000244250500	024436050002	444705000244	600500024471
1825 050002450205	000245130500	024524050002	453505000245	460500024557	050002457005	000246010500	024612050002
1873 462305000246	340500170015	001100220014	002000110017	002400210020	002000350025	001400170026	002700070014
1921 002100160023	001300220013	002700110023	002100310017	000200310002	001000020006	000200350004	000300100003
1969 001000060011	002600120011	001400110002	000300130010	000600100004	000200050002	001300070003	000100030001
2017 000400020003	000400000000	000300010002	000100020002	000100020002	000100010002	000500010001	000200020000
2065 164000010000	000000010000	000000010002	000100000001	000200010000	000100000000	000100030003	000300010002
2113 000213400001	000000010000	000000020000	154000220002	000300020001	000100020000	000300000001	000200030002
2161 000100020001	000100010000	000100040002	700300010000	000400030002	0001000160004	000200030003	000400010001
2209 000100000001	000300020003	000300010000	000000020002	000500060002	000000030002	000300010003	000300100002
2257 000000010002	000316400001	000100120002	000600000000	000400040002	000300030002	000100000003	000000020002
2305 000000000001	000100270003	000200040005	000100000003	000200010000	000000010001	000200000000	000000021640
2353 000000010000	000100000000	000000000000	000000000001	000200000003	000000020000	000213410000	000000000000
2401 001300000001	000000000000	000400010001	000000020000	000100000011	000500010000	000300020003	000000030004
2449 000400040001	000400020003	000300030004	000500020001	000500070007	0003000130011	000200040007	000200060002
2497 001200020003	000700060007	000700100005	000500120005	000500040003	000600040016	000600150005	000300030004
2545 000600050004	000600040004	000400070003	001000060002	000500110010	001100030004	000400030003	000300070003
2593 000400070007	000600130011	000500101641	000700050003	001000100012	001500110012	001600100020	001500100010
2641 000400030006	001000100030	000400060005	001100170004	004700040047	005100060047	00615570050	005400570067
2689 007301410050	014301400072	00660670037	007001530077	014201430143	014300710074	014600700035	001700170014
2737 002600260007	002100210024	002100150016	001300250031	003500150022	002400140021	002200270026	002200340032
2785 002600210022	003700070012	002100010004	000600010006	000300020023	000500040024	000500030005	164100070010
2833 000400030004	000100060002	000500040002	000700050004	001100010020	000000000000	000000000000	000000000002
2881 000000000000	000100110004	000500100006	000500110015	164000010001	001200020001	000100020000	000200010000
2929 000100000003	000100010000	000000010000	000000000002	000000000000	000100000000	000000000002	000100010002

2977	000100020001	000300030002	000500040005	000500030005	000400040004	000500050006	000300060009	000000000001
3025	000000000000	000100000000	000000000000	000000000000	164000000000	000000000000	000000000020	000000000000
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3121	074500170017	002200000004	000300030004	000100040000	000500020005	000500150014	000300020725	270730320733
3165	350734770740	020745040746	070747510752	540755570760	620762230765	260770310773	340776371000	001001031006
3217	061011111012	521015551020	601023531026	661030271033	320000000000	001043011046	041051071054	121055531060
3265	560001210004	240007270010	700013730016	760022010023	430026450031	500034530037	560042610044	230047250052
3313	300055330056	750062000065	020070050071	470074520077	550102570105	620107240112	270115320120	340121760125
3361	010130040133	070136120137	530142560145	610150640152	250155300160	330163360164	770170020173	050176100201
3405	130000000000	000210620213	650215260220	310223340226	370231420233	030236060241	110244140247	170250600253
3457	630256660261	710263330266	350266350266	350263330260	300256660253	530250600245	560242530241	110236060233
3505	030230010226	370223340220	310215260212	240210620205	570202540177	510176100173	050170020000	000000000000
3553	000000000000	000001210121	012101210121	012101220122	012201210121	012101210121	012101210121	012101210121
3601	012201210121	012101210121	012100000000	012101210121	012101210122	012101210122	012201210122	012101210121
3645	012101210122	012201210121	012101200121	012101210122	012201220121	012201220121	012101210121	012101220121
3697	012101210121	012101220121	012101210121	012101310121	012101210121	000000000122	012101210122	012101210121
3745	012201210121	012201210021	012201220121	012101210121	012101220122	012101210121	012101220121	012201210121
3793	012101210121	012201210121	012101210122	012101210121	000000000000	000000000000	000000000000	000000000000
3841	003000270027	003000270027	002700270030	002700300027	003000300030	003000270027	002700300027	002700270030
3885	002700270027	000000000030	002700270027	003000270030	002700270030	003000270027	003000270027	003000270027
3937	003000300027	002700300027	002700270027	002700300030	002700270030	002700270030	002700270030	002700270027
3985	002700270027	003400270027	003000270027	002700270000	000000270027	002700300027	002700270027	003000300027
4033	002700270030	002700270027	002700270030	002700270030	002700270030	002700270030	003000270127	003000270030
4081	003000270027	003000270027	002700320000	000000000000	000000000000	000000000000	000000000000	166454000010
4125	035000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000271240
4177	000002204000	003007000000	274440000002	134000002777	000000277640	000002054000	002767000000	302740000001
4225	774000002760	000000306140	000001724000	002750000000	311340000001	644000002740	000000314540	000001564000
4273	002731000000	317640000001	534000002725	000000321140	000001534000	002725000000	321140000001	534000002725
4321	000000321140	000001534000	002725000000	321140000001	534000002725	000000321140	000001534000	002725000000
4365	321140000001	534000002725	000000321140	000001534000	002725000000	321140000001	424000002620	000000307640
4417	000001474000	002617000000	306540000001	534000002616	000000305440	000001604000	002615000000	304340000001
4465	654000002615	000000303240	300001714000	002614000000	302140000001	764000002613	000000301040	000002024000
4513	002612000000	277740000002	024000002617	000000277340	000001754000	002632000000	277240000001	704000002644
4561	000000277040	000001644000	002657000000	276740000001	574000002671	000000276640	000001524000	002704000000
4605	276540000001	454000002716	000000276340	000001414000	002731000000	276240000001	434000002737	000000275740
4657	000001534000	002740000000	275240000001	624000002742	000000274540	000001723000	002744000000	274040000002
4703	024000002746	000000273340	000002124000	002750000000	272640000002	214000002752	000000272140	000002314000
4753	002754000000	271440000002	334000002752	000000272040	000002274000	002746000000	273340000002	244000002742
4801	000000274540	000002214000	002736000000	276040000002	154000002732	000000277340	000002124000	002726000000
4845	300640000002	074000002722	000000302140	000002044000	002715000000	303440000001	754000002720	000000303040
4897	000001634000	002727000000	301140000001	514000002736	000000277240	000001404000	002745000000	275340000001
4945	264000002754	000000273540	000001144000	002763000000	271640000001	034000002772	000000267740	000000714000
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5377	000000244000	002766000000	262700000000	324000002763	000000262500	000000404000	002760000000	262200000000
5425	464000002755	000000262000	000000554000	002751000000	261600000000	634000002746	000000261400	000000714000
5473	002743000000	261100000000	724000002735	000000261500	000000704000	002724000000	262400000000	664000002713
5521	000000263300	000000644000	002703000000	264300000000	624000002672	000000265200	000000604000	002662000000
5565	266200000000	564000002651	000000267100	000000544000	002640000000	270000000000	554000002633	000000271100
5617	000000604000	002632000000	272300000000	634000002630	000000273500	000000664000	002626000000	274700000000
5665	714000002624	000000276100	000000734000	002622000000	277200000000	764000002620	000000300400	000001014000
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5761	000000302300	000001174000	002575000000	302300000001	224000002570	000000302300	000001264000	002563000000
5805	302300000001	314000002556	000000302300	000001354000	002552000000	302300000001	344000002547	000000302600
5857	000001274000	002545000000	303200000001	224000002543	000000303500	000001164000	002541000000	304100000001
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Table with 10 columns and 40 rows. Header: FILE 0001 REC 0001 CH 7242. Data contains alphanumeric sequences.

Table with 10 columns and 40 rows. Header: FILE 0001 REC 0002 CH 7242. Data contains alphanumeric sequences.

5473	004364000000	710000000023	014000004375	000000705400	000022304000	004406000000	703000000021	574000004420
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5569	676100000021	564000004574	000000676100	000021734000	004634000000	676200000022	104000004675	000000676200
5617	000022254000	004736000000	676200000022	424000004777	000000676200	000022604000	005036000000	676200000023
5665	434000005020	000000675700	000024264000	005002000000	675400000025	114000004763	000000675100	000025744000
5713	004745000000	674600000026	574000004727	000000674300	000027424000	004711000000	674000000030	254000004675
5761	000000673500	000031074000	004654000000	673100000031	104000004623	000000670200	000031124000	004572000000
5809	665300000031	144000004540	000000662400	000031164000	004507000000	657500000031	204000004456	000000654600
5857	000031224000	004425000000	651700000031	244000004374	000000647000	000031244000	004342000000	644000000030
5905	224000004260	000000634700	000027204000	004175000000	625600000026	164000004113	000000616600	000025144000
5953	004030000000	607500000024	124000003746	000000600400	000023104000	003663000000	571400000022	064000003601
6001	000000562300	000021064000	003522000000	553600000021	454000003673	000000567600	000022034000	004043000000
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6097	266322663226	632266323073	230732307323	073230732307	323073230732	307323073230	732307323073	230732307323
6145	073230732307	323073230732	307323073230	732307323073	230732307323	073230732307	323073230732	307323073230
6193	732307323073	230732307323	073230732307	323073230732	307323073230	732307323073	230732307323	073230732307
6241	323073230732	307323073230	732307323073	230732307323	073230732307	323073230732	307323073230	732307323073
6289	230732307323	073230732307	323073230732	307323073230	732307323073	230732307323	073230732307	323073230732
6337	307323073230	732307323073	230732307323	073230732307	323073230732	330323303233	032330323303	233032330323
6385	303233032330	323303233032	330323303776	437764377653	776537765377	653776637766	377663776637	766377673776
6433	737767377673	777037770377	703777037771	377713777137	771377713777	237772377723	777237773377	733777337773
6481	377743777437	774377743777	537775377753	777537775377	763777637776	377763777737	777377773777	740000400004
6529	000040000400	004000140001	400014000140	002400024000	240002400034	000340003400	034000340004	400044000440
6577	004400054000	540005400054	000640006400	064000640007	400074000740	007400074001	040010400104	010400114000
6625	114001140011	400124001240	012400124001	240013400134	001340013400	144001440014	400144001540	015400154001
6673	540016400164	001640016400	164001740017	400174001740	020400204002	040020400214	002140021400	214002140022
6721	046420464204	642046420464	204642046420	464204642046	420464204642	046420464204	643046430464	304643046430
6769	464304643046	430464304643	046430464304	6430464				

[illegible]

4125	653200000000	000000000000	000000000000	000000000000	000000000000	000000000023	364000004534	000000647600
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4225	254000005201	000000720400	000025614000	005161000000	725300000026	164000005140	000000732300	000026524000
4273	005120000000	737200000027	064000005077	000000744100	000027424000	005056000000	751100000027	764000005036
4321	000000756000	000030334000	005015000000	762600000031	174000004776	000000757000	000032024000	004757000000
4369	753200000032	664000004737	000000747500	000033524000	004720000000	743700000034	364000004701	000000740200
4417	000035214000	004662000000	734400000036	054000004642	000000730600	000036714000	004623000000	725000000037
4465	714000004600	000000716000	000040704000	004555000000	707000000041	674000004532	000000700000	000042674000
4513	004507000000	671000000043	664000004463	000000662000	000044654000	004440000000	653000000045	654000004415
4561	000000644000	000046644000	004373000000	635200000047	544000004376	000000635600	000050444000	004402000000
4609	636200000051	344000004405	000000636700	000052244000	004411000000	637300000053	144000004415	000000637700
4657	000054044000	004420000000	640400000054	744000004424	000000641000	000055634000	004427000000	641400000056
4705	054000004414	000000541200	000056274000	004401000000	640700000056	514000004365	000000640500	000056734000
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4849	635100000057	464000004145	000000634100	000057354000	004110000000	633200000057	234000004052	000000632200
4897	000057124000	004015000000	631300000057	004000003760	000000630400	000056674000	003723000000	627400000056
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4993	003532000000	623300000057	354000003474	000000622300	000057454000	003436000000	621300000057	554000003400
5041	000000620300	000057644000	003343000000	617300000057	474000003364	000000617300	000057324000	003405000000
5089	617300000057	164000003426	000000617300	000057014000	003446000000	617300000056	644000003467	000000617300
5137	000056474000	003510000000	617300000056	324000003531	000000617300	000056164000	003552000000	617300000056
5185	214000003566	000000614500	000056254000	003502000000	612000000056	314000003616	000000607200	000056354000
5233	003632000000	604400000056	414000003646	000000601700	000056454000	003662000000	577100000056	514000003676
5281	000000574400	000056544000	003711000000	571600000056	544000003711	000000571600	000056544000	003711000000
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5425	604000003536	000000564400	000055644000	003520000000	564500000055	704000003501	000000564600	000055754000
5473	003463000000	564700000056	014000003444	000000565000	000056054000	003425000000	565100000056	114000003407
5521	000000565200	000056154000	003370000000	565200000056	004000003347	000000562100	000056440000	003326000000
5569	557000000055	474000003305	000000553700	000055324000	003264000000	557600000000	000000000000	000000000000
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6049	000000000000	000000000000	000000000000	000000000000	000000000000	000032330323	303233032330	323303233032
6097	330323303233	032330323303	233032330323	303233032330	323303233032	330323303233	032330323303	233032330323
6145	303233032330	323303233032	330323303233	032330323303	233032330323	303233032330	323303233032	330323303233
6193	032330323303	233032330323	303233032330	323303233032	330323303233	032330323303	233032330323	303233032330
6241	323303233032	330323303233	032330323303	233032330323	303233032330	323303233032	330323303233	032330323303
6289	233032330323	303233032330	323303233032	350323503235	032350323503	235000000000	000000000000	000000000000
6337	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
6385	000000000000	000000000000	000000004002	240022400224	002340023400	234002340024	400244002440	024400254002
6433	540025400254	002540026400	264002640026	400274002740	027400274003	040030400304	003040030400	314003140031
6481	400314003240	032400324003	240033400334	003340033400	344003440034	400344003440	035400354003	540035400364
6529	003640036400	364003740037	400374003740	037400404004	040040404004	004140041400	414004140042	400424004240
6577	042400434004	340043400434	004340044400	444004440044	400454004540	045400454004	640046400464	004640046400
6625	674004740047	400474005040	050400500000	000000000000	000000000000	000000000000	000000000000	000000000000
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6769	464504645046	450464504645	046450464504	645046450464	504645046450	464504645046	450464504645	046450464504
6817	645046450464	504645046450	464504645046	645046450464	504645046450	464504645046	504645046450	464504645046
6865	450464504645	046450464504	645046450464	504645046450	464504645046	450464504645	046450464504	645046450464
6913	504645046450	464504646046	460464604646	046460464604	646046460464	604646046460	464604646046	460464604646
6961	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
7009	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
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FILE 0001 REC 0009 CH 7242

7104	022101650165	021302310172	023301750257	022602650243	031002540104	010203070312	025000130000	000000000000
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7201	006401520323	022202500215	000000310125	020402370316	037501710027	002300000000	000000000000	