

Data Set Catalog # 225

OGO-5
Zodiacal Light and Airglow
69-006A-07C 78 tapes

Table of Contents

1. Introduction
2. Errata/Change Log
3. LINKS TO RELEVANT INFORMATION IN THE ONLINE NSSDC INFORMATION SYSTEM
4. Catalog Materials
 - a. Associated Documents
 - b. Core Catalog Materials

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 This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system.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

OSO 5

ZODIACAL LGT & AIRGLOW, MAG TAPE

69-006A-07C

SP10 00306

THIS DATA SET HAS BEEN RESTORED. THERE WERE ORIGINALLY 78 9-TRACK, 1600 BPI TAPES, WRITTEN IN BINARY. THERE ARE 13 RESTORED TAPES. WITH FURTHER REVIEW OF THIS DATA SET IT WAS CONCLUDED THAT THE ORIGINAL TIME SPANS WERE OFF BY ONE DAY AND HAVE BEEN REFELECTED ON THIS COVER SHEET. THE DR TAPES ARE 3480 CARTRIDGES AND THE DS TAPES ARE 9-TRACK, 6250 BPI. THE ORIGINAL TAPES WERE CREATED ON A CDC 6600 COMPUTER AND WERE RESTORED ON THE MRS SYSTEM. THE DR AND DS NUMBERS ALONG WITH THE CORRESPONDING D NUMBERS AND TIME SPANS ARE AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
DR004773	DS004773	D006954	1	01/27/69 - 02/05/69
		D006955	2	02/05/69 - 02/11/69
		D006956	3	02/11/69 - 02/18/69
		D006957	4	02/18/69 - 02/24/69
		D006958	5	02/24/69 - 03/03/69
		D006959	6	03/03/69 - 03/07/69
		D006960	7	03/10/69 - 03/16/69 (a)
DR004774	DS004774	D006961	1	03/16/69 - 03/23/69 (b)
		D006962	2	03/23/69 - 03/29/69
		D006963	3	03/30/69 - 04/05/69
DR004775	DS004775	D006964	1	04/05/69 - 04/12/69
		D006965	2	04/12/69 - 04/18/69
		D006966	3	04/18/69 - 04/25/69
		D006967	4	04/25/69 - 05/02/69
		D006968	5	05/02/69 - 05/08/69
		D006969	6	05/08/69 - 05/14/69 (c)
DR004776	DS004776	D006970	1	05/15/69 - 05/22/69 (d)
		D006971	2	05/22/69 - 05/28/69
		D006972	3	05/28/69 - 06/04/69 (e)
		D006973	4	06/04/69 - 06/10/69 (f)
		D006974	5	06/10/69 - 06/16/69
		D006975	6	06/16/69 - 06/22/69
		D006976	7	06/22/69 - 06/30/69

OSO-5

ZODIACAL LIGHT AND AIRGLOW

69-006A-07C

This data set consists of 78 800 BPI, Binary tapes that contain 1 file. These tapes were produced on a CDC 6600 with a maximum physical record length of 512 words and a maximum logical record length of 7160 words. The first physical record in a logical record is distinguished by a BCD record name in the first word, and the last physical record is less than 512 words.

Each night is written on the tape as 4 logical records. The first record contains the aspect, time, and housekeeping data. The remaining 3 logical records contain packed telescope data. The dumps that follow are the beginning of the first and last night on each tape.

<u>D#</u>	<u>C#</u>	<u>START</u>	<u>STOP</u>
D-06954	C-07468	1/26/69	2/04/69
D-06955	C-07469	2/04/69	2/10/69
D-06956	C-07470	2/10/69	2/17/69
D-06957	C-07471	2/17/69	2/23/69
D-06958	C-07472	2/23/69	3/02/69
D-06959	C-07473	3/02/69	3/08/69
D-06960	C-07474	3/09/69	3/15/69
D-06961	C-07475	3/15/69	3/22/69
D-06962	C-07476	3/22/69	3/28/69
D-06963	C-07477	3/29/69	4/04/69
D-06964	C-07478	4/04/69	4/11/69
D-06965	C-07479	4/11/69	4/17/69
D-06966	C-07480	4/17/69	4/24/69
D-06967	C-07481	4/24/69	5/01/69
D-06968	C-07482	5/01/69	5/07/69

<u>D#</u>	<u>C#</u>	<u>START</u>	<u>STOP</u>
D-06969	C-07483	5/07/69	5/13/69
D-06970	C-07484	5/14/69	5/21/69
D-06971	C-07485	5/21/69	5/27/69
D-06972	C-07486	5/27/69	6/03/69
D-06973	C-07487	6/03/69	6/09/69
D-06974	C-07488	6/09/69	6/15/69
D-06975	C-07489	6/15/69	6/21/69
D-06976	C-07490	6/21/69	6/29/69
D-06977	C-07491	6/29/69	7/06/69
D-06978	C-07492	7/06/69	7/13/69
D-06979	C-07493	7/13/69	7/19/69
D-06980	C-07494	7/19/69	7/26/69
D-06981	C-07495	7/26/69	8/01/69
D-06982	C-07496	8/01/69	8/08/69
D-06983	C-07497	8/08/69	8/15/69
D-06984	C-07498	8/15/69	8/20/69
D-06985	C-07499	8/21/69	8/28/69
D-06986	C-07500	8/28/69	9/04/69
D-06987	C-07501	9/04/69	9/10/69
D-06988	C-07502	9/10/69	9/16/69
D-06989	C-07503	9/16/69	9/23/69
D-06990	C-07504	9/23/69	9/30/69
D-06991	C-07505	10/01/69	10/08/69
D-06992	C-07506	10/08/69	10/31/69
D-06993	C-07507	10/13/69	10/22/69
D-06994	C-07508	10/22/69	10/27/69
D-06995	C-07509	10/27/69	11/02/69
D-06996	C-07510	11/02/69	11/09/69
D-06997	C-07511	11/09/69	11/16/69
D-06998	C-07512	11/16/69	11/22/69
D-06999	C-07513	11/22/69	11/28/69

<u>D#</u>	<u>C#</u>	<u>START</u>	<u>STOP</u>
D-07000	C-07514	11/28/69	12/04/69
D-07001	C-07515	12/04/69	12/11/69
D-07002	C-07516	12/11/69	12/17/69
D-07003	C-07517	12/17/69	12/25/69
D-07004	C-07518	12/25/69	1/01/70
D-07005	C-07519	1/01/70	1/08/70
D-07006	C-07520	1/08/70	1/14/70
D-07007	C-07521	1/14/70	1/21/70
D-07008	C-07522	1/21/70	1/27/70
D-07009	C-07523	1/27/70	2/03/70
D-07010	C-07524	2/03/70	2/09/70
D-07011	C-07525	2/09/70	2/16/70
D-07012	C-07526	2/16/70	2/23/70
D-07013	C-07527	2/23/70	3/02/70
D-07014	C-07528	3/02/70	3/08/70
D-07015	C-07529	3/08/70	3/14/70
D-07016	C-07530	3/14/70	3/21/70
D-07017	C-07531	3/21/70	3/27/70
D-07018	C-07532	3/28/70	4/03/70
D-07019	C-07533	4/04/70	4/10/70
D-07020	C-07534	4/10/70	4/17/70
D-07021	C-07535	4/17/70	4/23/70
D-07022	C-07536	4/24/70	5/13/70
D-07023	C-07537	5/13/70	5/20/70
D-07024	C-07538	5/20/70	5/27/70
D-07025	C-07539	5/27/70	6/02/70
D-07026	C-07540	6/02/70	6/08/70
D-07027	C-07541	6/08/70	6/16/70
D-07028	C-07542	6/16/70	6/22/70
D-07029	C-07543	6/22/70	6/29/70
D-07030	C-07544	6/29/70	7/04/70
D-07031	C-07545	7/05/70	7/12/70

69-006A - 07C

OSO-5 MINNESOTA REDUCED DATA FORMAT

The Minnesota reduced data tapes contain the edited information received by the OSO-5 dim light monitor. For a complete explanation of the experiment see reference #1.

The data were processed by DECOM, one weeks worth of data, which is contained on one magnetic tape. Accompanying each tape or decom is also a microfilm printout of the data, and a microfilm plot of the data.

Since the experiment was night oriented, a night's worth of data was taken as the main data interval rather than an orbit. This results in some nights being made up of two orbits. The point at which this happens is flagged in the aspect record as there can be ~.1 sec time discontinuity at this point. A night represents 28-36 minutes of data.

The tapes were written with a CDC-6600, and thus contain 6600 word size, floating point, hollerith, etc. The maximum physical record written by the 6600 is 512 words and the maximum logical length of the records can be as long as 7160. Each logical record then contains a number of physical records. The first physical record in a logical record is easily distinguished by the hollerith record name in the first word, and the last physical record is short, less than 512 words.

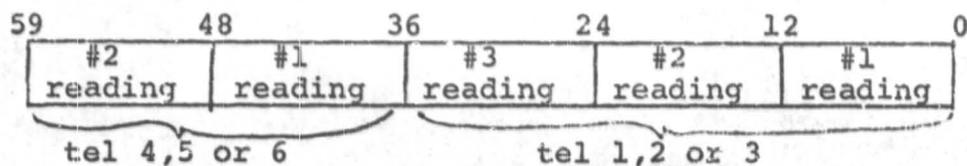
Each night is written on the tape as four logical records that vary in length but do not exceed 7160 6600 words. The first record contains the necessary aspect, time, and house-keeping data for the night. The remaining records contain the packed telescope data. At least one end of file marks the end of the decom. The tape is written at 800 B.P.I. in odd parity.

The first 26 words of the aspect record contain information that does not change appreciably during the night. Following this in groups of 25 words the changing aspect is listed. See Tables #2 and #3.

For each main frame of data, 0.32 sec, telescopes 1, 2 and 3 are sampled three times while 4, 5 and 6 are read out twice. Table #1 gives the time in msec to be added to the time of main frame word one to get the exact time of the readings. The housekeeping data were subcommutated on the main frame, repeating every 48 main frames. As a result the changing aspect including time, temperature, etc. was stored in the aspect record at 48 main frames or 15.36 sec intervals in groups of 25 words. The first word of a changing aspect block represents in msec of year the time of word 1 of main frame 1. The time for the first word of the remaining 47 main frames is found by successively adding 0.32 sec.

Each word after the first two in the telescope data records also represents a main frame, the third word, after replacement of deleted main frames (see explanation of word #2 below), corresponds to main frame one of the first changing aspect block. Thus time is easily assigned to the data, the time of every 48th main frame being in the aspect. A given telescope reading has a maximum intensity of 4095 which may be fitted into 12 bits. The third word of telescope 3 is not complete, containing the upper 8 bits only, and should not be used in detailed analysis. Questionable or missing data were set to zero. When turned off due to excessive light, the telescopes read a small, <20, non zero number to be distinguished from the

above case. A 6600 word is 60 bits long, and can therefore hold five readings. As three of the telescopes read out three times and three twice per main frame, by pairing a three reading telescope with a two reading telescope, the data of two telescopes for one main frame can be stored in one 6600 word. This was done. The data is packed as:



The data for telescopes 3,5 are stored together in record #2, the data for telescopes 1,4 in record #3 and the data for telescopes 2,6 in record #4.

The first word of the data records gives the appropriate header name, SCOPES 3,5, SCOPES 1,4, or SCOPES 2,6. The second word gives a count of the number of main frames deleted, from the start of the first aspect time, due to the two telescopes in question being off. This was done to save space as the telescopes were often off at the start or end of the night due to the moon. The zero or off data at the end of the record was simply dropped, but it was necessary to keep a count of the main frames dropped at the start so the times of the data could be properly computed from the aspect. Telescopes looking in the same direction were paired to maximize the amount of off data that could be deleted. See Table #4.

- 4 -

References.

1. G. B. Burnett, J. G. Sparrow and E. P. Ney, Applied Optics, 11, 2075 (1972).

TABLE #1

The time in msec to be added to main frame word one time to get exact time of the telescope reading.

Tel word	Telescope					
	1	2	3	4	5	6
1	-100	-85	-30	-175	-130	-115
2	0	15	40	55	70	85
3	100	115	130	-	-	-

These times are based on a spacecraft clock rate of 0.320 sec/main frame; they must be properly scaled if the exact clock rate given in the aspect is used.

TABLE #2
Aspect Record

6600 word		Units
1	Record identifier (OSO F,D 1969)	
2	Night name	
3	Right ascension of the sun.	rad.
4	Declination of the sun.	rad.
5	Pitch angle	rad.
6	Roll angle.	rad.
7	Right ascension of spin axis.	rad.
8	Declination of spin axis.	rad.
9	sunset	m sec of year.
10	sunrise	m sec of year.
11	Angle between spin axis and orbit plane.	rad.
12	Experiment temperature.	C°
13	Calibrate 1=calibrate 0=no calibrate.	
14	Time questionable 1=questions 0=okay.	
15	Right ascension of ascending mode.	rad.
16	Ecliptic longitude	rad.
17	Ecliptic latitude	rad.
18	Galactic longitude	rad.
19	Galactic latitude	rad.
20	Year	
21	main frame period(≈320) first orbit.	msec
22	Main frame period (≈320) second orbit.	msec

6600 word

Units

23	Changing aspect start time	msec year
24	Orbit change time, 0 if no change	msec year
25	Changing aspect end time	msec year.
26	Sub record identifier (ASPECT)	
27-51	Changing aspect block 1 ¹⁴	
52-76	Changing aspect block 2 ²⁷	
76-101	"	
	"	
	"	
	"	

All words are floating point with the exception of 1,2,26 which are hollerith.

TABLE #3

Changing Aspect Block

6600 word		Units
1	Time of word 1, main frame 1 of 48 main frame block.	msec year
2	Satellite declination.	rad.
3	Satellite longitude.	rad.
4	Satellite height	km.
5	Satellite right ascension	rad.
6	Magnetic field strength.	gauss.
7	Right ascension of magnetic vector.	rad.
8	Declination of magnetic vector.	rad.
9	McIllwain's L parameter.	earth radii.
10	Angular wheel position	rad.
11	Time increment since DSM word one.	msec.
12	Geomagnetic latitude.	rad.
13	Geomagnetic longitude	rad.
14	Spin rate.	rad./sec.
15	DSM word time	msec year
16	Sore count	
17	Wheel word time	msec year
18	Eye #1, 3-12 bit readings packed	
19	Eye #2, 3-12 bit readings packed	
20	Spin axis look latitude	rad.
21	Spin axis look longitude	rad.

6600 word

Units

- | | | |
|----|---|-----|
| 22 | Spin axis perpendicular look height if off earth. | km. |
| 23 | Spin axis look direction, 0=sail,
1=antisail | |
| 24 | Double orbits, 0=first orbit data
1=second orbit data. | |
| 25 | Frame counter. | |

All words are floating point with the exception of 18,19 which are packed integer.

Table #4
Data Record

6600 word

- 1 Telescopes name.
- 2 Number of main frames skipped at start of record.
- 3 Main frame one data.
- 4 Main frame two data.

.
. .
. .
. .

Main frame 48 data.

Main frame 1 data

.
. .
. .
. .
. .
. .
. .

The first word is hollerith, the second integer, and the remaining packed integer.

4753	771203640250	027675277660	025302410406	615170070233	023302404550	55040630241	024336744227	040003770244
4801	432247620324	026803062856	362302710337	033716122303	040204160274	101213650217	025202540533	072602430216
4845	023303300443	027002570255	020602640001	070504450124	016000010001	000100030105	000100010001	004100530001
4897	000100010025	003400010001	000100150022	000100010001	001100130001	000100010006	001000010001	000100040005
4945	000100010001	000400050001	000100010003	000400010001	000100030003	000200010001		

0001	172317065504	344441440605	023337353455	555517225434	702340010036	606134056615	055174751712	525571424000
0049	000017217622	377130000000	171776446615	101534366060	377060235603	752717575472	007422600000	175754740245
0097	374000006062	333167254050	653517204314	631463146315	172040000000	000000000000	000000000000	000017206131
0145	603354662300	172061221565	536707236060	134470576306	405517217663	622156532242	606006307602	032366451732
0193	754200000000	000017304777	605075341217	000000000000	000000001757	547200613100	000000000000	000000000000
0241	175754740114	450000000123	200503245555	555517575472	006131000000	000000000000	000000000000	000000000000
0289	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0337	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0385	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0433	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0481	000000000000	000000000000	000000000000	000000000000	000000000000	175754720155	310000000000	000000000000
0529	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0577	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0625	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0673	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0721	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	00000001757	547202513100
0769	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0817	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0865	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0913	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0961	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1009	000017575472	034531000000	606301357132	422603146061	372152061635	537717314165	355157252122	172053053105
1057	156403541736	525364152752	542217176237	367671317314	171777011012	612353001720	447505366257	242517204637
1105	440740000000	604606657777	777777771712	746435235044	200017177632	633454106414	172165057317	154473220000
1153	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1201	606324476535	703045466062	064474307477	030100000000	000000000000	172040000000	000000000000	000000000000
1249	000000000000	000000000000	175754720441	305075346063	060555736775	564560620174	060436533037	173141645211
1297	606050511720	534262057201	065417365265	356304005704	171762627253	422135301720	400011306106	304717204457
1345	161366161404	172046374407	400000001735	703300753400	000017134615	064756310532	171777350435	145274441721
1393	650573171544	732217575472	044476770243	172740400000	000000001757	547204504735	463100000000	037703770377
1441	000000000264	027603126063	316730512010	615060621225	532440367204	000000000000	00000001720	400000000000
1489	000000000000	000000000000	172552000000	000000001757	547205353020	000060631255	240355220166	606205243117
1537	600213371731	416370057013	753017205400	072412344322	173653011171	601754671717	600323226377	467317204040
1585	317170173234	172044612415	701345571720	463744074000	000017367215	240000000000	171356013730	064454101720
1633	401760262375	215617216505	731715447322	175754720540	764777771726	444000000000	000017575472	054447064365
1681	000000000377	037703770000	000002410245	025360633710	552467145570	606216063745	276643500000	000000000000
1729	000017204000	000000000000	000000000000	000000001725	330000000000	000017575472	063127707534	606317275405
1777	311636006062	105415740700	657717314163	073602316337	172054353056	671771761736	531370421011	663417176320
1825	506561536017	172041012552	621554611720	445327444033	211017204637	440740000000	173754064417	270000001713
1873	656740250754	707617204061	043523532030	172165057317	154473221757	547206347617	024317257700	000000000000
1921	175754720640	465546310000	000003770377	037700000000	023102320234	606410675636	560667336062	216734353775
1969	472000000000	000000000000	172040000000	000000000000	000000000000	000017255400	000000000000	175754720725
2017	274000006063	240211146557	372560621403	274127452077	173141623014	441347241720	547244643736	343617365326
2065	504354046123	171763347706	033674721720	414310166244	002417204445	253540706121	172154163250	100000006046
2113	064777777777	777717137560	027747670242	172041223535	521326561721	634647300136	015617575472	073075677777
2161	172661000000	000000001757	547207344626	436500000000	037703770377	000000000230	023002266064	234235313353
2209	675360622550	273774521656	000000000000	000000001720	400000000000	000000000000	000000000000	172555000000
2257	000000001757	547210212710	753460633054	531047172521	606217323725	203651371731	410152443021	522517205527
2305	604707214570	173653413555	026240561717	634141327231	525317204205	131744470755	172044372707	745211551721
2353	541632501000	000017357032	107534000000	171442642356	461621171720	416400423074	601317216346	473001360156
2401	175754721024	753702431727	542000000000	000017575472	103045754631	000000000377	037703770000	000002330233
2449	022760643617	450254466532	606231320104	261653510000	000000000000	000017204000	000000000000	000000000000
2497	000000001725	560000000000	000017575472	111526600000	606335275707	024266476062	226122265402	543717314160
2545	763466530214	172055647162	357712341736	535426205525	414717176341	273450006227	172042476016	027213271720
2593	443130241224	527517215416	325010000000	173672147000	000000001714	466120755143	065217204225	537301531323
2641	172163464730	013601561757	547211207507	777717304530	000000000000	175754721124	454643650000	000003770377

2689	037700000000	024102410235	606522003174	635556566062	351410244667	406410000000	000000000000	172040000000
2737	000000000000	000000000000	000017255700	000000000000	175754721211	263075346064	040652664130	250061622607
2785	606332104677	173141602365	744301021720	562200303277	310017368367	221733230537	171763344113	135335321720
2833	431267143306	047717204423	310261301763	172154163250	100000001737	540626172700	000017145256	755461072354
2881	172042674010	545624571721	634647300136	015617575472	121474570243	173072000000	000000001757	547212204515
2929	463100000000	037703770377	000000000256	025102506066	172175225466	167160630175	431451112537	000000000000
2977	000000001720	400000000000	000000000000	000000000000	172560000000	000000001757	547213052560	000060641537
3025	340547131363	606231355647	577617371731	415752522033	560517205657	026653671743	173554022015	522314251717
3073	632622130454	752017204356	571244713500	172044152603	113564041722	531345735000	000060460665	177777777777
3121	171456556377	011342411720	433134213403	416417216223	024346012350	175754721310	742777771731	517000000000
3169	000017575472	131444664365	000000000377	037703770000	000003000266	026360712644	147065357445	606311435017
3217	551577070000	000000000000	000017204000	000000000000	000000000000	000000001725	610000000000	000017575472
3265	140125307534	606426677410	705715146062	346364305730	347717314157	031512252366	172057140627	017565501736
3313	541525073707	113617176303	011511650260	172044224276	476617411720	440732675335	200717225313	457350000000
3361	173570327575	340000001714	625452440442	703217204373	455335723411	172162230243	460123501757	547214047357
3409	024317267240	000000000000	175754721410	441546310000	000003360377	036700000000	031503140300	171146412543
3457	634577116063	211402161436	366500000000	000000000000	172040000000	000000000000	000000000000	000017256200
3505	000000000000	175754721475	250000006065	004203124146	012560630023	357263207377	173141563525	506616601720
3553	575110356403	522517365430	365046506602	171762501247	713601171720	446653347261	625117204401	420741475025
3601	172253134573	500000001736	721522400000	000017146654	126323506625	172044357257	671073031721	622302434601
3649	235017575472	150073277777	173062100000	000000001757	547215044366	433500000000	031003120343	000000000345
3697	033403301712	511632010366	737460633066	216524710246	000000000000	000000001720	400000000000	000000000000
3745	000000000000	172563000000	000000001757	547215712450	753460652325	320233060357	606306767506	657456771731
3793	415571035143	274017206006	111471037660	173654435461	564301701717	620556314550	113517204533	104761544425
3841	172043735362	236553331722	531345735000	000017375406	433727000000	171472543236	205321671720	450034163664
3889	430517216223	024346012350	175754721574	727702431731	553000000000	000017575472	160043354631	000000000310
3937	031403140000	000003750362	035417127723	727755140066	606401050620	237173050000	000000000000	000017204000
3985	000000000000	000000000000	000000001725	640000000000	000017575472	166524200000	606614256367	554561166063
4033	155162004572	747717314155	262445457076	172060430722	657764541736	545675776125	051017176141	264565326317
4081	172046002201	236637601720	436564555106	057417216657	277070000000	604606471777	777777771714	76556367227
4129	136317204543	115623456052	172161105073	224044541757	547216707247	777717304230	000000000000	175754721674
4177	430643650000	000002260235	025000000000	037703770377	171352612637	200356146064	204131051422	436300000000
4225	000000000000	172040000000	000000000000	000000000000	000017256500	000000000000	175754721761	237075346070
4273	076677612462	636760632425	104244672777	173141546522	343603511720	610007372500	256717365472	301045256517
4321	171760454574	276677741720	464456220457	724317204360	107221407520	1721665722770	70000001735	703205753400
4369	000017154127	476644363606	172046061040	260071731721	611050732240	445417575472	176472170243	173152140000
4417	000000001757	547217704255	463100000000	022602510213	000000000377	037703771713	657352225424	640060650010
4465	741524631673	000000000000	000000001720	400000000000	000000000000	000000000000	172566000000	000000001757
4513	547220552340	000017105714	173163655674	606333003412	747112771731	415425703531	373317206135	074011630720
4561	173655057030	772442751717	573455176551	621617204711	101012003242	172043524250	572307771721	565727707000
4609	000017367214	664000000000	171543305503	435702521720	455127336654	170617216110	507322404454	175754722060
4657	716777771730	443000000000	000017575472	206442264365	000000000224	022503000000	000003770377	037717144045
4705	034342153706	606537331073	625274130000	000000000000	000017204000	000000000000	000000000000	000000001725
4753	670000000000	000017575472	215123107534	171175167543	450261006064	032732521056	257717314153	700646274276
4801	172061720727	131265211736	552136615631	072317175606	543344173160	172047553745	705747701720	434501705341
4849	010517216657	277070000000	173754062537	270000001715	453215350437	730217204714	675116332734	172161105073
4897	224044541757	54722154737	024317315774	000000000000	175754722160	417546310000	000001700201	021600000000
4945	037703770377	171446164075	260471176072	351742432704	747700000000	000000000000	172040000000	000000000000
4993	000000000000	000017257000	000000000000	175754722245	226000001712	613475733414	266017165110	230711354240
5041	17311533373	042327621720	622705747342	356317365535	114711076126	171754551245	755166651720	502237627717
5089	517217204337	442656575763	172171127514	100000006046	067037777777	777700000000		

0001	171451261602	165673451720	632451005466	240117216003	731505251402	175734722250	710777771730	702000000000
0049	000017575472	225441464365	000000000311	024702050000	00000377077	037717145372	467016044030	171660750427
0097	201136510000	000000000000	000017204000	000000000000	000000000000	000000001725	710000000000	000017575472
0145	234122307534	171342100017	522004366061	052745166026	151717314153	013533465771	172062640764	447142661736
0193	555077662406	030017175250	133714346173	172050652532	017627671720	433223503770	257217217112	751410000000
0241	173570331275	340000001715	743475166407	067617176534	646426342736	172160037315	052514021757	547223447057
0289	024317275060	000000000000	175754722350	411546310000	000001640177	022000000000	037703770377	171461504552
0337	664362376061	154131637570	252300000000	000000000000	172040000000	000000000000	000000000000	000017257200
0385	000000000000	175754722435	220000001713	534111771562	160760571316	462230665703	173141525051	776267661720
0433	632112564227	365217365564	760464477773	171750132332	501724041720	512730202461	243517204325	130144073616

1825	260752666446	171770135705	636560071720	427132164125	716217225125	257710000000	604696657777	777777771714
1873	613236634552	207017207752	116233030213	172162210046	017752661762	612667115245	777717305750	000000000000
1921	176261266712	075170230000	000003770377	037700000000	012401310135	171555311522	125747371717	604524571053
1965	124100000000	000000000000	172040000000	000000000000	000000000000	000017277060	000000000000	176261266720
2017	556205071716	501776032360	126117175510	671516250101	173142141634	012221261722	564360367250	722217367043
2065	126321514337	172152402302	577326351717	714370614133	413617204262	163235777743	172251252577	100000001735
2113	703310507000	000017145054	052063206160	172140036155	501200431721	622100460177	526617626126	672112437270
2161	173147700000	000000001762	612667214747	031400000000	037703770377	00000000113	011501211715	516266774543
2205	551117176154	764000140167	000000000000	000000001720	400000000000	00000000000	000000000000	172771000000
2257	000000001762	612667301560	000017164716	560515677716	171756040713	173137231731	421471660151	460217225653
2305	571327521417	173670330365	747147171721	526042474202	172517177275	332206341544	172042531754	202051551722
2353	512525771000	000017367215	340000000000	171377166641	545462361721	402245546044	147517216221	004601775266
2401	176261266730	524177771727	406000000000	000017626126	673107457023	000000000377	037703770000	000001050107
2445	011117154601	367706031775	171762653205	242641670000	000000000000	000017204000	000000000000	000000000000
2497	000000001727	712000000000	000017626126	673755560507	171646147004	146054741717	567701377520	033617314215
2545	454671377663	172256635312	502632311736	702273120210	407217215301	046655344122	171774302653	267040631720
2593	424436034506	364517225125	257710000000	173754065212	160000001713	542070236504	055417214041	432502306243
2641	172162210046	017752661762	612667401237	727017307260	000000000000	176261266740	474363140000	000003620377
2685	037700000000	010001010103	171542031235	760344311717	637665776173	110100000000	000000000000	172040000000
2737	000000000000	000000000000	000017277140	000000000000	176261266747	155200001716	451230617554	765617175771
2785	443236772651	173142162155	164161751722	567344162301	444317367012	545552626024	172153216127	750222131717
2833	756443211566	526217204235	724623552623	172157033640	600000006046	065377777777	777717126045	720077214161
2881	172140605526	226650271721	610164701642	265017626126	674752357777	172543000000	000000001762	612667500741
2929	702300000000	030103220334	000000000074	007500771714	735232677660	326117176511	436455601242	000000000000
2977	000000001720	400000000000	000000000000	000000000000	172771600000	000000001762	612667565550	050717164407
3025	401574124136	171760636730	126611331731	421676170062	133717225703	332271322207	173670025336	413301431721
3073	534317120460	037617177722	436114052270	172042274023	132504211721	570336406000	000017357032	405070000000
3121	170762100547	565445571721	410012304555	211717216101	647016422650	176261266757	123172701730	711000000000
3169	000017626126	675747356314	000000000221	023502560000	000000710072	007317146251	447105206215	171766260476
3217	621701520000	000000000000	000017204000	000000000000	000000000000	000000001727	720000000000	000017626126
3265	676615460000	171643040626	703150111717	615566476647	032317314217	531116270210	172257131771	657045511736
3313	677255724727	370717215365	124644202031	172040310326	306174701720	422121536564	063317215703	364060000000
3361	173672151000	000000006065	306564673542	707017214117	775363247660	172161016470	164226501762	612667665227
3409	777717265640	000000000000	176261266767	073370230000	000001720175	020700000000	006700700071	171450710130
3457	473170071717	674474037277	434200000000	000000000000	172040000000	000000000000	000000000000	000017277220
3505	000000000000	176261266775	554405071716	420013117256	165117176247	421400237123	173142203033	711256531722
3553	572302033560	572617366762	640146733754	172154074356	143167411720	411146040125	316717204213	166002141155
3601	172157033640	600000001737	540640121600	000060642351	201425017023	172141402674	333504631721	610164701642
3649	265017626126	677612257270	173145300000	000000001762	612667764731	631400000000	014401520160	000000000065
3697	006500661713	742241531776	636417177067	034311416023	000000000000	000000001720	400000000000	000000000000
3745	000000000000	172772400000	000000001762	612670051542	000017164073	537204754676	171763407056	261215141731
3793	422106063420	631017225732	614506063652	173667527046	426374721721	543215515223	551317204172	702335076505
3841	172042052652	013557441721	475275250000	000060460705	177777777777	606333760274	002044441721	416137705565
3889	316617215767	476573764040	176261267005	522377771730	463000000000	000017626126	700607277023	000000000126
3937	013201400000	000000630064	006417134400	267712171421	171772157372	073316310000	000000000000	000017204000
3985	000000000000	000000000000	000000001727	726000000000	000017626126	701455400507	171577555720	031442231717
4033	643201344562	363017314221	641371345077	172257423727	555522101736	674330131767	106317215456	166432353073
4081	172042550326	306706661720	417756013045	252717214752	752500000000	173570340550	700000006063	136662673715
4129	773317214203	727576111732	172157674765	737640401762	612670151221	727017256200	000000000000	176261267015
4177	472563140000	000001150117	012300000000	006100620062	171073415247	256402471717	735444546245	505300000000
4225	000000000000	172040000000	000000000000	000000000000	000017277300	000000000000	176261267024	153400001715
4273	754315561723	601417176522	702761026206	173142224252	371046471722	575212735240	673717366734	040175727251
4321	172155030256	244730121720	434002131237	537217204172	223666661051	172147527525	000000001736	721562400000
4369	000060623357	422415602777	172142306074	756666331721	576747657376	404017626126	702452177777	173152100000
4417	000000001762	612670250723	702300000000	010501070112	000000000057	006000616065	055273207527	715117177531
4465	763341410105	000000000000	000000001720	400000000000	000000000000	000000000000	172773200000	000000001762
4513	612670335532	050717157327	617673646760	171766133600	477151211731	422321425006	010217225761	642527516222
4561	173667247406	372575001721	553051432773	767617204423	651711276434	172041650377	240456051721	475275250000
4609	000017375406	653216000000	606212335361	122676271721	426563443505	137317215767	476573764040	176261267034
4657	121372701730	750000000000	000017626126	703447176314	000000000077	010101030000	000000560057	005760632154
4705	716661757345	171777715350	500567460000	000000000000	000017204000	000000000000	000000000000	000000001727
4753	734000000000	000017626126	704315300000	171571133060	613671031717	670361054022	331017314224	006346735475

FILE 0001 REC 0016 CF 5124

4801	172257713332	271610541736	671573151275	047617215556	537254172674	172045103501	363165631720	416000743413
4845	062017224023	131230000000	604606731777	777777776061	376134163150	504117214314	14053'656612	172156611662
4897	260242411762	612670435211	777717305240	000000000000	176261267044	071570230000	000000720074	007400000000
4945	005400550056	606237012557	111775111720	406651440640	256017247532	536742513000	172040000000	000000000000
4993	000000000000	000017277360	000000000000	176261267052	552605071715	667635040177	007417176773	704126666674
5041	173142246040	632132541722	600101024662	412617366707	451647377015	172156075201	613166771720	457564421753
5089	773117204153	244136203523	172240231312	300000001735	703335507000	000000000000		

FILE 0001 REC 0017 CF 5124

0001	606200224011	565677721721	432517205775	411217215661	166226024241	176261267053	120772701727	706000000000
0049	000017626126	705347136314	000000000065	006500710000	000000530053	005460630016	667201574143	172041070607
0097	325262631726	414421415705	700017204000	000000000000	000000000000	000000001727	740000000000	000017626126
0145	706215240000	171564606042	103123661717	706360467302	557517314225	405031146312	172260104460	072336211736
0193	670147024345	712117215642	163550537347	172046637632	733350221720	414670611365	215417224023	131230000000
0241	173672154640	000000006062	010175261733	043617214336	121166311005	172156611662	260242411762	612670625205
0289	777717274440	000000000000	176261267063	071170230000	000000630064	006500000000	005100520052	606302316211
0337	351037771720	412723655100	057717266314	037776110100	172040000000	000000000000	000000000000	000017277420
0385	000000000000	176261267071	552205071715	624223050244	271117177153	313045074006	173142262112	326076731722
0433	602006431527	143717366674	005056754612	172156763117	323744771720	475272556515	737317204142	555330642130
0481	172240231312	300000001737	540557321600	000060620161	175056757705	172143467475	376710511721	566116622602
0529	424117626126	707212037270	172645000000	000000001762	612670724707	631400000000	006000610062	000000000047
0577	005000516063	044335776514	422217204147	230717274034	172742065661	502704001720	400000000000	000000000000
0625	000000000000	172774400000	000000001762	612671011520	000017156023	022756131573	171772426211	155665761731
0673	422702070036	655617226027	462617450664	173656665604	457215231721	573330204214	310517205042	550140536546
0721	172041366277	517041571721	432747104000	000060460665	177777777777	606202402544	401055641721	435747506740
0769	547417215631	205720213420	176261267101	520177771720	400000000000	000017626126	710207057023	000000000056
0817	005600600000	000000450046	004760630653	677443654420	172041670367	674751241727	522376527632	050017204000
0865	000000000000	000000000000	000000001727	746000000000	000017626126	711055'50507	171556032637	257740101717
0913	733201454667	466117314227	633442706720	172260370476	526435001736	666226575766	452217216000	771225733670
0961	172051326105	011025011720	413313233547	622317214327	471040000000	173570330550	700000006062	031730652514
1009	171717214370	144563540101	172156312057	202134201762	612671111177	727017316160	000000000000	176261267111
1057	470363140000	000000540054	005500000000	004400440045	606310633750	305044211720	420652431257	611317276215
1105	117634447000	172040000000	000000000000	000000000000	000017277500	000000000000	176261267120	151200001715
1153	536263263257	777617177420	772111066521	173142304514	115767461722	604641307472	767017366656	114173731565
1201	172160123571	154643031720	522550430023	607517204127	457455617664	171365667320	000000006041	021546377777
1249	777760620376	145072007204	172144005116	635737271721	563045437335	124017626126	712051757777	173155100000
1297	000000001762	612671210701	702300000000	005200520053	000000000042	004200436063	127157320175	537117204226
1345	023144476446	172771623001	530666001720	400000000000	000000000000	000000000000	172775200000	000000001762
1393	612671275510	050717155141	715572726166	171775076547	355317751731	423127252172	031517226055	747046270661
1441	173666530265	412471711721	610014515706	423517205316	326416253602	172041244442	331612351713	656673200000
1489	000060420032	755067777777	606204547766	561037221721	441101017325	050617215630	454373351240	176261267130
1537	117172701731	504400000000	000017626126	713046756314	000000000050	005000510000	000000400041	004150631477
1585	262003332466	172042452164	120363261730	404140411520	536017204000	000000000000	000000000000	000000001727
1633	754000000000	000017626126	713715060000	171547203761	606005271717	757641232375	632517314232	116777551040
1681	172260652702	671525741736	665060020567	411617216211	612564646565	172054065016	364411651720	412174552734
1729	672217136566	732000000000	604606531777	777777775062	053355330742	532617214421	230472665656	172156304543
1777	733512401762	612671375167	777717314370	000000000000	176261267140	067370230000	000000470047	005000000000
1825	003600370037	606317040602	121715511720	426427104354	763517304377	366050267040	172040000000	000000000000
1873	000000000000	000017277560	000000000000	176261267146	550405071715	447645335777	404717177665	022700776147
1921	173142327464	252266501722	607457700351	673717366647	210743227733	172163501400	472140041720	547620641213
1969	330417204117	563533245567	171365667320	000000001735	70235507000	000060620612	250647021616	172144313740
2017	302466421721	563045437335	124017626126	714711657270	173076300000	000000001762	612671474671	631400000000
2065	004500460046	000000000034	003500366063	210777234646	040117204303	224715524254	173047230002	354767001720
2113	400000000000	000000000000	000000000000	172776000000	000000001762	612671561502	000017154253	735705073704
2161	171777532415	745655031731	423360146037	713617226104	066326707304	173666461473	010033421721	635106367714
2209	250117205615	451624304331	172041156367	630321171722	415364217000	000060420034	477777777777	606206705757
2257	334415211721	444144776454	450617215632	011324324354	175261267156	516377771730	647000000000	000017626126
2305	715706677023	000000000044	004400450000	000000330034	003460632312	557512716151	172043220165	021661761730
2353	523402326575	534017204000	000000000000	000000000000	000000001727	762000000000	000017626126	716555000507
2401	171540310441	133625461720	402060444242	157317314234	437352553711	172261133507	322505761736	664634151710
2449	322217216616	274667767670	172056757006	756244001720	411432226636	475017224153	642170000000	604507061215
2497	777777776062	074714433671	025317214451	467274027427	172156320113	243243541762	612671661161	727017305320
2545	000000000000	176261267166	466563140000	000000430043	004400000000	00310320033	606325150051	537551061720

2593	434052776435	475017305532	245066242640	172040000000	000000000000	000000000000	000017277640	000000000000
2641	176261267175	147400001714	741352775253	765717204053	626161140753	173142353002	505510271722	612262272120
2689	642717366647	544433434702	172172043171	530511371720	574070023544	715517204113	353173557762	172241536421
2737	700000001735	703370000000	000060621025	460700536026	172144614422	341237001721	563201132432	435417625126
2785	717551577777	173041400000	000000001762	612671760663	702300000000	004200420043	000000000030	003000316063
2833	271650115622	331017204357	142352330645	173060156372	305346601720	400000000000	000000000000	000000000000
2881	172776600000	000000001762	612672045472	050717146744	325436267267	172041066076	167204071731	423614421037
2929	566517226132	064711760535	173666517601	244434331721	771317450612	034717205766	452475724676	172041127514
2977	375464541722	415364217000	000017367215	642434000000	606211037447	205275341721	447135212600	164317215632
3025	011324324354	176261267205	115372701727	574000000000	000017626126	720546576314	000000000041	004100420000
3073	000000260027	003060633117	457550104341	172043754605	240463531730	626634352400	622017204000	000000000000
3121	000000000000	000000001727	770000000000	000017626126	721414700000	171462737417	222367501720	414150555161
3169	140717314237	013566447200	172261413120	011255421736	665475414212	016317224507	232662566026	172060027227
3217	317403461720	411256732355	523117214064	042740000000	604200337777	777777776062	116210567114	674317214501
3265	203776014424	172156331711	654455611762	612672145151	777717266740	000000000000	176261267215	065570230000
3313	000000400040	004100000000	002500250026	606333174533	777060301720	441365632320	726517306524	135622045100
3361	172040000000	000000000000	000000000000	000017277720	000000000000	176261267223	546605071714	562322777522
3409	071117204174	372602621072	173142376654	571017101722	615053467360	437117366661	267424024166	172250156753
3457	177737161720	577465543247	062717204113	132670536237	172140640427	600000006046	067412157777	777760621240
3505	321401366116	172145110127	505316141721	563317116544	556117626126	722411477270	172476000000	000000001762
3553	612672244653	631400000000	003700400040	000000000023	002400246063	351725661150	447417204432	015701513773
3601	173067466456	535267001720	400000000000	000000000000	000000000000	172777400000	000000001762	612672331464
3649	000017145152	102440521367	172042272302	762421431731	424054216460	074317226157	751673032110	173666667334
3697	036205701722	525610476272	246617205747	325001153514	172041141207	230235221721	406404276000	000017357033
3745	400000000000	606213165333	073662121721	452056650401	157217215633	171165445561	176261267233	514577771731
3793	630400000000	000017626126	723406517023	000000000037	003700400000	000000220023	002360633716	473743552042
3841	172044500776	144644421730	715626035411	106017204000	000000000000	000000000000	000000001727	776000000000
3889	000017626126	724254620507	171445003400	224653431720	426203654533	145617314241	421511564404	172261671610
3937	226757521736	667553010044	167217225450	062320172547	172057025111	232655321720	411553144534	541517214064
3985	042760000000	173672155024	340000006062	137474237622	524717214530	307632301004	172156331711	654455611762
4033	612672431143	727017315600	000000000000	176261267243	464763140000	000000360036	003700000000	002100220022
4081	606402326532	243613231720	446610532464	227517307352	536430312560	172040000000	000000000000	000000000000
4129	000000000000	000000000000	176261267252	146000001714	402561503111	117717204314	573307142305	173142423043
4177	551506361722	701532552457	152217366705	337535522077	172255120417	524352561720	556436155007	330417204117
4225	552607605352	172261214725	300000006042	003347777777	777717147363	350521121555	172144114603	042424161721
4273	563314500270	460217626126	725251417777	173150740000	000000001762	612672530645	702300000000	003600360036
4321	000000000020	002100211715	764623574525	022417204064	735310076106	173064552224	237474000000	000000000000
4369	000000000000	000000000000	172040000000	000000001762	612672615456	050717136726	306604612667	172043473313
4417	606571331731	424317115416	057317226606	544746511014	173667164511	552534321722	561107000305	215617205472
4465	211065002014	172041222341	622567431722	612147253000	000060460666	121577777777	171156277733	373143061721
4513	444614437340	547417215633	145002704602	176261267262	113772701731	437400000000	000017626126	726246436314
4561	000000000036	003600360000	000000170020	002017154503	617075740500	172042211166	175555621731	403236530644
4609	361000000000	000000000000	000000000000	000000001721	400000000000	000017626126	727114520000	171356005422
4657	201221121720	440205066302	275217314244	060277577621	172260551461	673206301736	673076401623	726417225674
4705	065531252005	172053763662	341755301720	412534537132	754517226121	472530000000	173570327000	000000006061
4753	350621453527	745317214606	255546762615	172156331450	027046021762	612672715135	777717307560	000000000000
4801	176261267272	064170230000	000000350035	003600000000	001700170017	606301213172	035154071720	463327720114
4849	523117306630	327266260000	172040000000	000000000000	000000000000	000017216000	000000000000	176261267300
4897	545005071713	445230150334	130617204434	553344274137	173142447520	073227201722	500070050670	237517366744
4945	500677645506	172257430365	051233171720	530106500172	135317204131	106620672301	172261214725	300000001736
4993	721524243400	000060613015	217701775260	172145126027	547501721721	563314500270	460217626126	730111317270
5041	173063600000	000000001762	612673014635	631400000000	003500350036	000000000016	001600166062	247042407535
5089	366617204474	604715167466	000000000000	000000001720	400000000000	000000000000		

0001	000000000000	000000001722	400000000000	000017626126	731014460000	171266451700	566142131720	446721575171
0049	623017314245	646707427630	172076620141	220206121736	676142742050	012417225753	536237247564	172051771715
0097	117775621720	413517323453	315417217764	012320000000	604200327777	777777771715	573656560024	650317214672
0145	714032652573	172156316750	363371621762	612673105127	777717305170	000000000000	176261267311	063370230000
0193	000000350035	003600000000	001500160016	171653227761	412323001720	461051450621	544600000000	000000000000
0241	000000000000	000000000000	000000000000	000017225000	000000000000	176261267317	544405071712	436701305022
0289	504017204521	674432725177	173142465450	617173021717	535707042436	272117366777	544310353420	172260020251
0337	722033731720	507770022207	500417204142	050461564731	172177640123	200000006046	065412157777	777717145100

Data Set Catalog # 225

(Continued)

OSO-5

ZODIACAL LIGHT AND AIRGLOW

69-006A-07C

This data set consists of 78 800 BPI, Binary tapes that contain 1 file. These tapes were produced on a CDC 6600 with a maximum physical record length of 512 words and a maximum logical record length of 7160 words. The first physical record in a logical record is distinguished by a BCD record name in the first word, and the last physical record is less than 512 words.

Each night is written on the tape as 4 logical records. The first record contains the aspect, time, and housekeeping data. The remaining 3 logical records contain packed telescope data. The dumps that follow are the beginning of the first and last night on each tape.

<u>D#</u>	<u>C#</u>	<u>START</u>	<u>STOP</u>
D-06954	C-07468	1/26/69	2/04/69
D-06955	C-07469	2/04/69	2/10/69
D-06956	C-07470	2/10/69	2/17/69
D-06957	C-07471	2/17/69	2/23/69
D-06958	C-07472	2/23/69	3/02/69
D-06959	C-07473	3/02/69	3/08/69
D-06960	C-07474	3/09/69	3/15/69
D-06961	C-07475	3/15/69	3/22/69
D-06962	C-07476	3/22/69	3/28/69
D-06963	C-07477	3/29/69	4/04/69
D-06964	C-07478	4/04/69	4/11/69
D-06965	C-07479	4/11/69	4/17/69
D-06966	C-07480	4/17/69	4/24/69
D-06967	C-07481	4/24/69	5/01/69
D-06968	C-07482	5/01/69	5/07/69

<u>D#</u>	<u>C#</u>	<u>START</u>	<u>STOP</u>
D-06969	C-07483	5/07/69	5/13/69
D-06970	C-07484	5/14/69	5/21/69
D-06971	C-07485	5/21/69	5/27/69
D-06972	C-07486	5/27/69	6/03/69
D-06973	C-07487	6/03/69	6/09/69
D-06974	C-07488	6/09/69	6/15/69
D-06975	C-07489	6/15/69	6/21/69
D-06976	C-07490	6/21/69	6/29/69
D-06977	C-07491	6/29/69	7/06/69
D-06978	C-07492	7/06/69	7/13/69
D-06979	C-07493	7/13/69	7/19/69
D-06980	C-07494	7/19/69	7/26/69
D-06981	C-07495	7/26/69	8/01/69
D-06982	C-07496	8/01/69	8/08/69
D-06983	C-07497	8/08/69	8/15/69
D-06984	C-07498	8/15/69	8/20/69
D-06985	C-07499	8/21/69	8/28/69
D-06986	C-07500	8/28/69	9/04/69
D-06987	C-07501	9/04/69	9/10/69
D-06988	C-07502	9/10/69	9/16/69
D-06989	C-07503	9/16/69	9/23/69
D-06990	C-07504	9/23/69	9/30/69
D-06991	C-07505	10/01/69	10/08/69
D-06992	C-07506	10/08/69	10/31/69
D-06993	C-07507	10/13/69	10/22/69
D-06994	C-07508	10/22/69	10/27/69
D-06995	C-07509	10/27/69	11/02/69
D-06996	C-07510	11/02/69	11/09/69
D-06997	C-07511	11/09/69	11/16/69
D-06998	C-07512	11/16/69	11/22/69
D-06999	C-07513	11/22/69	11/28/69

<u>D#</u>	<u>C#</u>	<u>START</u>	<u>STOP</u>
D-07000	C-07514	11/28/69	12/04/69
D-07001	C-07515	12/04/69	12/11/69
D-07002	C-07516	12/11/69	12/17/69
D-07003	C-07517	12/17/69	12/25/69
D-07004	C-07518	12/25/69	1/01/70
D-07005	C-07519	1/01/70	1/08/70
D-07006	C-07520	1/08/70	1/14/70
D-07007	C-07521	1/14/70	1/21/70
D-07008	C-07522	1/21/70	1/27/70
D-07009	C-07523	1/27/70	2/03/70
D-07010	C-07524	2/03/70	2/09/70
D-07011	C-07525	2/09/70	2/16/70
D-07012	C-07526	2/16/70	2/23/70
D-07013	C-07527	2/23/70	3/02/70
D-07014	C-07528	3/02/70	3/08/70
D-07015	C-07529	3/08/70	3/14/70
D-07016	C-07530	3/14/70	3/21/70
D-07017	C-07531	3/21/70	3/27/70
D-07018	C-07532	3/28/70	4/03/70
D-07019	C-07533	4/04/70	4/10/70
D-07020	C-07534	4/10/70	4/17/70
D-07021	C-07535	4/17/70	4/23/70
D-07022	C-07536	4/24/70	5/13/70
D-07023	C-07537	5/13/70	5/20/70
D-07024	C-07538	5/20/70	5/27/70
D-07025	C-07539	5/27/70	6/02/70
D-07026	C-07540	6/02/70	6/08/70
D-07027	C-07541	6/08/70	6/16/70
D-07028	C-07542	6/16/70	6/22/70
D-07029	C-07543	6/22/70	5/29/70
D-07030	C-07544	6/29/70	7/04/70
D-07031	C-07545	7/05/70	7/12/70

69-006A-07C



UNIVERSITY OF MINNESOTA
TWIN CITIES

School of Physics and Astronomy
148 Physics Building
Minneapolis, Minnesota 55455

March 15, 1973

Dr. Charles Wende
NASA
OSO Project
Goddard Space Flight Center
Greenbelt, Maryland 20771

Dear Dr. Wende:

I am enclosing our report on the OSO-5 reduced data format as discussed in our telephone conversation of last week.

Sincerely,

A handwritten signature in cursive script that reads "Edward P. Ney".

Edward P. Ney
Professor of Physics

EPN:ijq

Enc.

The Minnesota reduced data tapes contain the edited information received by the OSO-5 dim light monitor. For a complete explanation of the experiment see reference #1.

The data were processed by DECOM, one weeks worth of data, which is contained on one magnetic tape. Accompanying each tape or decom is also a microfilm printout of the data, and a microfilm plot of the data.

Since the experiment was night oriented, a night's worth of data was taken as the main data interval rather than an orbit. This results in some nights being made up of two orbits. The point at which this happens is flagged in the aspect record as there can be ~.1 sec time discontinuity at this point. A night represents 28-36 minutes of data.

The tapes were written with a CDC-6600, and thus contain 6600 word size, floating point, hollerith, etc. The maximum physical record written by the 6600 is 512 words and the maximum logical length of the records can be as long as 7160. Each logical record then contains a number of physical records. The first physical record in a logical record is easily distinguished by the hollerith record name in the first word, and the last physical record is short, less than 512 words.

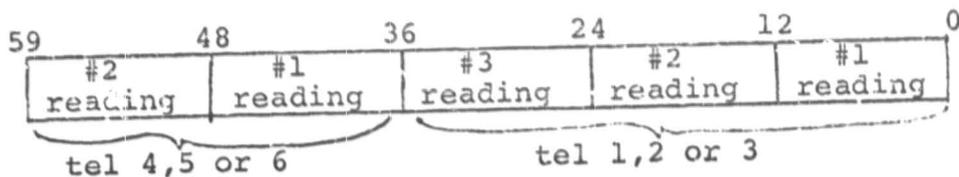
Each night is written on the tape as four logical records that vary in length but do not exceed 7160 6600 words. The first record contains the necessary aspect, time, and house-keeping data for the night. The remaining records contain the packed telescope data. At least one end of file marks the end of the decom. The tape is written at 800 B.P.I. in odd parity.

The first 26 words of the aspect record contain information that does not change appreciably during the night. Following this in groups of 25 words the changing aspect is listed. See Tables #2 and #3.

For each main frame of data, 0.32 sec, telescopes 1, 2 and 3 are sampled three times while 4, 5 and 6 are read out twice. Table #1 gives the time in msec to be added to the time of main frame word one to get the exact time of the readings. The housekeeping data were subcommutated on the main frame, repeating every 48 main frames. As a result the changing aspect including time, temperature, etc. was stored in the aspect record at 48 main frames or 15.36 sec intervals in groups of 25 words. The first word of a changing aspect block represents in msec of year the time of word 1 of main frame 1. The time for the first word of the remaining 47 main frames is found by successively adding 0.32 sec.

Each word after the first two in the telescope data records also represents a main frame, the third word, after replacement of deleted main frames (see explanation of word #2 below), corresponds to main frame one of the first changing aspect block. Thus time is easily assigned to the data, the time of every 48th main frame being in the aspect. A given telescope reading has a maximum intensity of 4095 which may be fitted into 12 bits. The third word of telescope 3 is not complete, containing the upper 8 bits only, and should not be used in detailed analysis. Questionable or missing data were set to zero. When turned off due to excessive light, the telescopes read a small, <20, non zero number to be distinguished from the

above case. A 6600 word is 60 bits long, and can therefore hold five readings. As three of the telescopes read out three times and three twice per main frame, by pairing a three reading telescope with a two reading telescope, the data of two telescopes for one main frame can be stored in one 6600 word. This was done. The data is packed as:



The data for telescopes 3,5 are stored together in record #2, the data for telescopes 1,4 in record #3 and the data for telescopes 2,6 in record #4.

The first word of the data records gives the appropriate header name, SCOPES 3,5, SCOPES 1,4, or SCOPES 2,6. The second word gives a count of the number of main frames deleted, from the start of the first aspect time, due to the two telescopes in question being off. This was done to save space as the telescopes were often off at the start or end of the night due to the moon. The zero or off data at the end of the record was simply dropped, but it was necessary to keep a count of the main frames dropped at the start so the times of the data could be properly computed from the aspect. Telescopes looking in the same direction were paired to maximize the amount of off data that could be deleted. See Table #4.

References.

1. G. B. Burnett, J. G. Sparrow and E. P. Ney, *Applied Optics*, 11, 2075 (1972).

TABLE #1

The time in msec to be added to main frame word one time to get exact time of the telescope reading.

Tel word	Telescope					
	1	2	3	4	5	6
1	-100	-85	-30	-175	-130	-115
2	0	15	40	55	70	85
3	100	115	130	-	-	-

These times are based on a spacecraft clock rate of 0.320 sec/main frame; they must be properly scaled if the exact clock rate given in the aspect is used.

TABLE #2
Aspect Record

6600 word		Units
1	Record identifier (OSO F,D 1969)	
2	Night name	
3	Right ascension of the sun.	rad.
4	Declination of the sun.	rad.
5	Pitch angle	rad.
6	Roll angle.	rad.
7	Right ascension of spin axis.	rad.
8	Declination of spin axis.	rad.
9	sunset	m sec of year
10	sunrise	m sec of year
11	Angle between spin axis and orbit plane.	rad.
12	Experiment temperature.	C°
13	Calibrate 1=calibrate 0=no calibrate.	
14	Time questionable 1=questions 0=okay.	
15	Right ascension of ascending node.	rad.
16	Ecliptic longitude	rad.
17	Ecliptic latitude	rad.
18	Galactic longitude	rad.
19	Galactic latitude	rad.
20	Year	
21	main frame period(≈320) first orbit.	msec
22	Main frame period (≈320) second orbit.	msec

6600 word

Units

23	Changing aspect start time	msec year
24	Orbit change time, 0 if no change	msec year
25	Changing aspect end time	msec year.
26	Sub record identifier (ASPECT)	
27-51	Changing aspect block 1	
52-76	Changing aspect block 2	
76-101	"	
	"	
	"	
	"	

All words are floating point with the exception of 1,2,26 which are hollerith.

TABLE #3

Changing Aspect Block

6600 word		Units
1	Time of word 1, main frame 1 of 48 main frame block.	msec year
2	Satellite declination.	rad.
3	Satellite longitude.	rad.
4	Satellite height	km.
5	Satellite right ascension	rad.
6	Magnetic field strength.	gauss.
7	Right ascension of magnetic vector.	rad.
8	Declination of magnetic vector.	rad.
9	McIllwain's L parameter.	earth radii.
10	Angular wheel position	rad.
11	Time increment since DSM word one.	msec.
12	Geomagnetic latitude.	rad.
13	Geomagnetic longitude	rad.
14	Spin rate.	rad./sec.
15	DSM word time	msec year
16	Sore count	
17	Wheel word time	msec year
18	Eye #1, 3-12 bit readings packed	
19	Eye #2, 3-12 bit readings packed	
20	Spin axis look latitude	rad.
21	Spin axis look longitude	rad.

600 word

Units

- | | | |
|----|---|-----|
| 22 | Spin axis perpendicular look height if off earth. | km. |
| 23 | Spin axis look direction, 0=sail,
1=antisail | |
| 24 | Double orbits, 0=first orbit data
1=second orbit data. | |
| 25 | Frame counter. | |

All words are floating point with the exception of 18,19 which are packed integer.

Table #4
Data Record

6600 word

- 1 Telescopes name.
- 2 Number of main frames skipped at start of record.
- 3 Main frame one data.
- 4 Main frame two data.

.

.

.

.

Main frame 48 data.

Main frame 1 data

.

.

.

.

.

.

.

The first word is hollerith, the second integer, and the remaining packed integer.

			START	11/02/69	STOP	11/09/69	DUPE OF D-6996	
0001	172317065504	344441441617	263336344355	555517217505	025473373324	606136060316	764536266065	363655337777
0045	777717226154	124630000000	172246621623	101754731720	435245154171	303617626127	422160700000	176261276140
0057	572400001717	421367624012	310217225400	000000000000	172040000000	000000000000	000000000000	000017216314
0145	117601152632	172071345256	101165641720	577200366577	153317200372	604140411160	171672654236	465745401732
0193	754200000000	000017304777	656050753412	000000000000	000000001762	612742210614	000000000000	000000000000
0241	176261276130	414000000123	200503245555	555517626127	422106140000	000000000000	000000000000	000000000000
0285	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0337	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0385	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0433	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0481	000000000000	000000000000	000000000000	000000000000	000000000000	176261274230	461400001716	550301513225
0529	453217156551	055376345664	173142104117	212374341722	557075503705	411017366547	077305364064	172153513751
0577	054764061717	640615151037	051417204366	727103324222	171740053156	000000006041	021520645777	777717157577
0625	153103625411	172060527540	140237331721	624533202204	434600000000	000000000000	000000000000	000000000000
0673	000000000000	000000000000	000000000000	000000000000	000000001715	720611027735	443417164222	303177252254
0721	000000000000	000000001720	400000000000	000000000000	000000000000	000000000000	000000001762	612742400612
0769	050717165404	336465347374	171571342250	673655641731	421112670176	047017225601	105775634262	173665326661
0817	717607501721	537104266244	732217176561	002675200626	172043540534	301434001717	400531560000	000060420032
0865	222227777777	171572037376	140501661720	610771316625	774717216245	332022044346	176261274240	427372701722
0913	500000000000	000017626127	424077776314	000000000377	037703770000	000003400366	037717156677	061331301353
0961	171644357670	757313530000	000000000000	000017204000	000000000000	000000000000	000000001726	524000000000
1009	000017626127	424746100000	171653052252	047563751715	751615174535	005017314211	646712672457	172256112122
1057	502167421736	651702464737	533417215410	523551040672	171767343130	355231361720	434163424210	330417174005
1105	315600000000	604606403227	777777771715	660173445101	014517206144	631340700157	172162453320	220443461762
1153	612742500271	777717265100	000000000000	176261274250	377570230000	000003770377	037700000000	023002510276
1201	171563613470	077736131716	465211424076	406400000000	000000000000	172040000000	000000000000	000000000000
1249	000017265300	000000000000	176261274257	060605071716	520546063463	220617164037	326515642216	173142123717
1297	556211531722	562127206453	037217366503	533055663614	172154302176	234530521717	711030261630	167717204330
1345	051305154530	171740053156	000000001735	703162223000	000017156170	300655677312	172062015453	634466211721
1393	624533202204	434617626127	425742677270	172763200000	000000001762	612742577773	631400000000	037703770377
1441	000000000166	020002131715	603434112372	230617165067	037642555102	000000000000	000000001720	400000000000
1489	000000000000	000000000000	172653400000	000000001762	612742664604	000017165105	201452425215	171642270567
1537	451024031731	421312005073	034117225631	325214734376	173664706110	540022321721	544772700744	72771717264
1585	751351100316	172043167220	337376271717	400531560000	000017367214	606460000000	171555462177	624027731720
1633	623650057175	324317216245	332022044346	176261274267	026577771730	570000000000	000017626127	426737717023
1681	000000000377	037703770000	000001400146	015517155477	102016017042	171653047416	145600160000	000000000000
1729	000017204000	000000000000	000000000000	000000001726	540000000000	000017626127	427606020507	171650044271
1777	770617721716	441607637662	702417314213	651176064474	172256413337	067773021736	645623560416	210417215467
1825	451357522724	171774420775	256255041720	430623041524	312117174005	315600000000	173754052444	460000001715
1873	511231445313	255317206273	500615034712	172162453320	220443461762	612742764263	727017314500	000000000000
1921	176261274276	776763140000	000003770377	037700000000	012201270133	171551302641	430657311716	552403725346
1969	455400000000	000000000000	172040000000	000000000000	000000000000	000017265440	000000000000	176261274305
2017	457600001716	470314425316	343717164604	400567235326	173142144053	376476541722	565131550523	530217366444
2065	234371721045	172155072064	252326761717	761770112435	130517204276	172665503735	172142630324	400000006046
2113	063616277777	777717154443	132450005034	172063305770	702503121721	617252103712	441617626127	430602617777
2161	172561000000	000000001762	612743063765	702300000000	037703770377	00000000107	011201161715	454651477527
2209	677117165744	604630115734	000000000000	000000001720	400000000000	000000000000	000000000000	172655000000
2257	000000001762	612743150574	050717164601	224105736305	171647721761	324115031731	421514454112	541717225661
2305	253055570664	173664326014	342075501721	552675727245	064417177776	165662755323	172042665711	536544261721
2353	426303244000	000017357031	514230000000	171477350300	203650711720	636603770231	066117216172	521037124416
2401	176261274315	425572701730	535000000000	000017626127	431577616314	000000000377	037703770000	000000770102
2449	010417154150	046266227322	171661674031	415751240000	000000000000	000017204000	000000000000	000000000000
2497	000000001726	554000000000	000017626127	432445720000	171644766511	314364401716	515726217535	024417314215
2545	707006543164	172256711637	421767561736	642151626374	753317215546	543251153706	172040664545	741062061720
2593	425762372252	126217214263	032440000000	173672145434	600000001714	652335140205	207217206423	516611637577
2641	172161725210	371244161762	612743250253	777717315330	000000000000	176261274325	375770230000	000003530363
2689	037700000000	007100730075	171472641340	645771241716	641471021722	323400000000	000000000000	172040000000
2737	000000000000	000000000000	000017265600	000000000000	176261274334	057005071716	437364306077	225417165343
2785	635437171650	173142164543	002263651722	570105017026	361417366411	002650127626	172155663424	140331171720
2833	415626625127	343017204251	312727124021	172142630324	400000001737	540622304600	000017145242	014535301425
2881	172064615111	000212331721	617252103712	441617626127	433442517270	173040700000	000000001762	612743347755
2929	631400000000	025002670330	000000000065	006600671714	616225450607	506117166645	574724731141	000000000000

2977	000000001720	400000000000	000000000000	000000000000	172656400000	000000001762	612743434566	000017164270
3029	145451363662	171655274457	511026621731	421722452062	425017225710	706241266706	173664006345	224220651721
3073	560605332462	055017204246	420511066760	172042435027	602621051722	471075062000	000060460640	022777777777
3121	171375731055	017250201720	652013664070	177617216053	663256331210	176261274344	024777771731	530000000000
3169	000017626127	434437537023	000000000202	021502270000	000000610062	006417145000	077460476772	171671031562
3217	364755450000	000000000000	000017204000	000000000000	000000000000	000000001726	570000000000	000017626127
3265	435305640507	171641641633	255672621716	571270071365	130017314220	000344512003	172257205254	610676771736
3313	637104651466	666217215626	151320140266	172043364661	066736541720	423612413607	44617224710	750620000000
3361	173570316062	300000001713	445533541453	246617206557	467336515700	172160536632	563312101762	612743534245
3409	727017305120	000000000000	176261274353	775163140000	000001550165	017400000000	005700600060	171372367630
3457	736330301710	734725222245	225300000000	000000000000	172040000000	000000000000	000000000000	000017265740
3505	000000000000	176261274362	456000001716	405761550262	262117166075	457371124155	173142205573	301732231722
3553	573032205557	176617366361	633512052042	172156464060	532564421720	442664752572	710617204231	122573610634
3601	172247107505	200000001736	721450046000	000017114210	616227560401	172066202345	262107331721	605366325633
3649	121017626127	436302437777	172250000000	000000001762	612743633747	702300000000	013501410146	000000000055
3697	005600571713	421352276473	337117167625	016667243773	000000000000	000000001720	400000000000	000000000000
3745	000000000000	172660000000	000000001762	612743720556	050717157725	536452620436	171662575717	657357401731
3793	422134150600	004517225740	074264535171	173663527730	761216041721	566700247725	243717204517	151216620332
3841	172042244762	207012271722	471075062000	000017375406	201446000000	606517356517	522360301720	666306372437
3889	427217216053	663256331210	176261274372	423772701731	423400000000	000017626127	437277436314	000000000120
3937	012401310000	000000530054	005517105430	377601003720	171740510472	366140660000	000000000000	000017204000
3985	000000000000	000000000000	000000001726	604000000000	000017626127	440145540000	171575126111	336712511716
4033	644120551267	115117314222	126776166566	172257476225	453047621736	634451226455	025117215707	315543152241
4081	172046076435	033771211720	422045037744	201117216244	022740000000	604606416027	777777776063	370756326557
4129	554517206731	762006060357	172157434277	337442121762	612744020235	777717304520	000000000000	176261274402
4177	374170230000	000001100113	011600000000	005200530053	606501452334	141517711717	422634731677	371500000000
4225	000000000000	172040000000	000000000000	000000000000	000017266100	000000000000	176261274411	055205071715
4273	727721056316	010717166622	311341500252	173142227176	647756621722	575733442404	577317366336	556651506275
4321	172157311475	146062001720	470016347462	074217204214	664374323565	172162440227	400000001735	703167523000
4369	000060623567	044034302245	172070170554	222637661721	574342773374	421217626127	441142337270	172647400000
4417	000000001762	612744117737	631400000000	010201040105	000000000051	005100526063	202664063127	234717174467
4465	012042164553	000000000000	000000001720	400000000000	000000000000	000000000000	172661400000	000000001762
4513	612744204550	000017157062	743256564115	171670030077	101106531731	422351401454	634317225767	026026145425
4561	175663311661	504554551721	575350520666	533517204770	515714640530	172042114220	325061311721	624402274000
4609	000017367214	634060000000	606223044045	545642511720	706742162533	525017215743	427733744212	176261274421
4657	023177771731	566000000000	000017626127	442137357023	000000000074	007600770000	000000470050	005060623646
4705	632100347354	171746504574	234247151724	757655733503	200017204000	000000000000	000000000000	000000001726
4753	620000000000	000017626127	443005460507	171566456302	177553401716	716310146124	741617314224	313407274430
4801	172257764772	004010231736	632414034246	775317215776	546503557062	172050610626	152715351720	420650112114
4849	461717216244	022740000000	173754062572	460000006062	235671750726	524717207111	443412352300	172157434277
4897	337442121762	612744304227	727017314544	000000000000	176261274430	773363140000	000000670071	007300000000
4945	004600470047	606237546006	367102501717	471143171470	563317264154	217762113300	172040000000	000000000000
4993	000000000000	000017266240	000000000000	175261274437	454200001715	642761422177	434017167342	540556334462
5041	173142251162	302142121722	600612661527	204217366317	464176613037	172160214614	731000041720	515150040712
5089	414217204204	100422755430	172170260074	300000006046	063352277777	777700000000		

0001	606224310434	647772451720	713325230051	450717715643	425504061405	176261274440	022577771730	752000000000
0049	000017626127	444037317023	000000000064	006600660000	000000450046	004660630143	773347652755	171747517774
0097	014253031726	632324721724	770017204000	000000000000	000000000000	000000001726	630000000000	000017626127
0145	444705400507	171562112140	631743141716	752174025652	742617314225	724314317116	172260155442	604661431736
0193	631330634366	716517216051	446071244320	172052416461	637673271720	420203076672	041317217026	007430000000
0241	173570313722	300000006062	250311455523	366217207154	721402052460	172156434255	040614051762	612744474221
0289	727017306300	000000000000	176261274447	772563140000	000000610063	006400000000	004400450045	606303554770
0337	131616501717	501206055322	650317274211	572635026540	172040000000	000000000000	000000000000	000017266340
0385	000000000000	176261274456	453600001715	577205317503	053417167700	577120413702	173142265356	345616721722
0433	602514366702	704117366307	455734160154	172161036631	371361301720	533172247710	377117204200	305654702200
0481	172170260074	300000001736	721447246000	000060622555	037502530642	172071762060	722270041721	564342550406
0529	140517626127	445702177777	173051400000	000000001762	612744573723	702300000000	005700600061	000000000043
0577	004400446063	056607460263	045617175051	613257513773	172752262321	221422401720	400000000000	000000000000
0625	000000000000	172664000000	000000001762	612744660534	050717155552	150751142173	171740274367	007671701731
0673	422735241324	440717226034	525265074043	173663041525	354026701721	614033076424	333217205421	706001353305
0721	172041771070	602631551721	702600743000	000017375406	176446000000	606226266325	502042471720	721731266224

0765	526517215643	425504061405	176261274466	421572701727	774000000000	000017626127	446677216314	000000000054
0817	005500560000	000000420042	004360630775	372211766103	171751110246	41641521727	621705262072	114017204000
0865	000000000000	000000000000	000000001726	644000000000	000017626127	447545320000	171553314610	337170511717
0913	411640766343	577717314230	172417606555	172260440700	317533611736	630120047566	272417216172	452175342344
0961	172055117052	616527211720	417625060546	343217205660	045520000000	604606413027	777777776062	270026412634
1005	531317207240	236130327457	172156325603	101154631762	612744760213	777717275420	000000000000	176261274475
1057	371770230000	000000520053	005300000000	004100410042	606312035402	202050271717	514771262655	210717277163
1105	666113562140	172040000000	000000000000	000000000000	000017266500	000000000000	176261274505	053005071715
1153	511050317211	004717174205	261147040405	173142310157	462407701722	605342264225	200717366276	513701036035
1201	172162755052	462731361720	560052425122	427317204175	574430220206	172056600455	200000001735	703166123000
1245	000060622751	661563027643	172072610460	130577011721	563256031011	546317626127	450542117270	172661000000
1297	00000001762	612745057715	631400000000	005100510052	000000000037	004000406063	141115607667	166217175206
1345	363645037660	173040420175	007413601720	400000000000	000000000000	000000000000	172665400000	000000001762
1393	612745144524	000017154666	702146767454	171742737264	556263521731	423164502446	066717226062	735060344100
1441	173662743466	020032651721	607071032612	130617205723	047030607445	172041754161	441177361722	553145030000
1485	000060410215	163057777777	606230230727	324644121720	730147076321	303617215633	211325060540	176261274515
1537	020777771724	460000000000	000017626127	451537137023	000000000047	004700510000	000000360036	003760631615
1585	366001203770	171752445036	331111331730	437771335026	660017204000	000000000000	000000000000	000000001726
1633	660000000000	000017626127	452405220507	171544446562	041165271717	436231373456	671417314232	477051317123
1681	172260722412	734651151736	627250253244	722317216311	163724661527	17206003144	554437261720	417547413537
1729	131417225531	450300000000	604200321532	277777776062	307426715160	653717207322	015276501240	172156332113
1777	250605401762	612745244203	727017316230	000000000000	176261274524	770763140000	000000460046	004700000000
1825	003500350036	606320211537	065521261717	530243743554	460717304723	201775177720	172040000000	000000000000
1873	000000000000	000017266640	000000000000	176261274533	452000001715	422227336466	345517174450	566523622516
1921	173142333342	166704341722	610153423372	743517366271	144111113673	172167346760	221774671720	604374446212
1969	130317204176	020606625152	172255314503	000000006046	063714277777	777760623145	404446354404	172073422245
2017	231537241721	563321132506	054017626127	453402017777	173155300000	000000001762	612745343705	702300000000
2065	004500450046	000000000033	003400346063	222414012522	006417175340	154455652540	173052340271	047733401720
2113	400000000000	000000000000	000000000000	172667000000	000000001762	612745430516	050717147776	722123637352
2161	171745367270	470147141731	423417450712	305317226111	015745357654	173662701131	116372611721	756565017543
2209	063517206065	252177622462	172041766137	411465361722	553145030000	000017357031	553230000000	606232164420
2257	016666741720	736232050107	513017215633	211325060540	176261274543	417772701731	502400000000	000017626127
2305	454377036314	000000000043	004400440000	000000320033	003360632426	326476717344	171753754564	327665351730
2353	553213300242	244017204000	000000000000	000000000000	000000001726	674000000000	000017526127	455245140000
2401	171473276023	310647401717	462471040605	110117314235	040421031034	172261202615	317350531736	626734224633
2449	206617224706	741734674753	172060611206	172374561720	417782507550	310517217176	614360000000	604200321231
2497	377777776062	326733656717	612617207402	254031554220	172156337601	275677731762	612745530175	777717314320
2545	000000000000	176261274553	370170230000	000000420043	004300000000	003000310031	606326274566	003051231717
2593	543247647601	043117306015	476476424740	172040000000	000000000000	000000000000	000017267000	000000000000
2641	176261274562	051205071714	666023316162	430017174712	634754232713	173142357070	152135551722	612752164424
2689	136117366267	131527432571	172253265115	622727161720	604525536340	127417204201	143430621213	172171766143
2737	600000006046	063660457777	777760623340	243774465712	172074221335	727545361721	563376012756	777317626127
2785	456241737270	173074200000	000000001762	612745627677	631400000000	004100420042	000000000027	003000305063
2833	303033155254	521517175467	376507434477	173062661123	227650001720	400000000000	000000000000	000000000000
2881	172670400000	000000001762	612745714506	000017146210	174515055205	171750004700	314365311731	423656050654
2929	662217226136	752625574461	173662672415	753110751722	564164057544	247417206015	316653431333	172042027453
2977	121166731721	717661436000	000017357031	323140000000	606234111150	615021141720	744171777321	30017215633
3025	760127567773	176261274572	017177771730	620000000000	000017626127	457236757023	000000000041	004100410000
3073	000000260026	002760633230	537204110252	171755241217	412402741730	652355222354	406017204000	000000000000
3121	000000000000	000000001726	710000000000	000017626127	460105040507	171455374213	112204201717	506623557515
3169	016717314237	435113760177	172261461750	732132301736	626767243510	610217226050	365477764450	172057512631
3217	051061071720	420503262230	534117217176	614360000000	173672144541	140000006062	346173376633	560517207461
3265	413210524345	172156337601	275677731762	612746014165	727017304760	000000000000	176261274601	767163140000
3313	000000400040	004000000000	002400250025	606334303126	735226271717	556047526445	524617306746	204110411260
3361	172040000000	000000000000	000000000000	000017267140	000000000000	176261274610	450200001714	506557452765
3409	706017175153	646411361043	173142403150	743073521722	677715074643	475717366270	554641341471	172257636545
3457	466332121720	564236062221	333617204207	504360444570	172062326003	600000006042	003201513777	777717156010
3505	501617457630	172072527407	372426721721	563341150364	127717626127	461101637777	172773000000	000000001762
3553	612746113667	702300000000	003700370040	000000000023	002400241715	745247033242	023417174541	227676251301
3601	173070535531	035606200000	000000000000	000000000000	000000000000	172672000000	000000001762	612746200500
3649	050717144413	722012440370	171752412503	410355601731	424117731712	405017226617	517664261525	173662720673
3697	535623031722	602446071241	505317205554	713020525646	172042123155	250415461720	623260036000	000060460634

0721	000000000000	000000000000	000000000000	070000000000	000000000000	000000000000	000000001761	761472564234
0769	000060642000	357152021552	605624533536	467775751731	416062144640	225017217733	536275316173	17363171220
0817	415575061722	503372560405	611617205354	723276071556	172042004762	34601731721	556463520000	000017367215
0865	350000000000	606436637031	275016026057	213172461434	260517216443	562736166752	176176147257	337777771730
0913	667000000000	000017617614	726026076050	000000000377	037703770000	000003770377	037760640756	300361237425
0961	605625225225	667522150000	000000000000	000000000000	000000000000	000000000000	000000001725	560000000000
1009	000017617614	727542301217	605406505160	644517736056	247065453435	213517314160	257742454470	172177522523
1057	201154651736	632236415104	713417224761	642531316040	172053240625	345331571720	420221144303	707017215564
1105	635200000000	173754065252	170000006064	276504252247	660260572173	244445346747	172164435627	361667521761
1153	761472763373	656017314124	000000000000	176176147277	260346310000	000003770377	037700000000	037703770377
1201	606336605317	763600646056	254150251416	715600000000	000000000000	000000000000	000000000000	000000000000
1249	000017255700	000000000000	176176147314	422000006063	365031437652	323460562506	154630511167	173141577255
1297	007400521721	777066551634	017417366326	041431711447	172247134424	252472021720	526312672037	233217204204
1345	163116213755	172040452725	500000006046	065437777777	777760642066	013210670273	605722346214	006252031721
1393	620243047607	642617617614	731533677777	173152300000	000000001761	761473162577	605000000000	037703770377
1441	000000000375	037703776063	315202617023	077660562560	504723542652	000000000000	000000000000	000000000000
1489	000000000000	000000000000	172560000000	000000001761	761473334214	121760633175	270540464720	605625235004
1537	261555051731	415740314473	023417224003	552222062404	173663316713	454202541722	465321125535	741417205224
1585	204461611124	172042062656	053243751720	404527255000	000017357032	425074000000	606411711411	041270656057
1633	227630266724	210517216202	430476076426	176176147334	335765601726	470000000000	000017617614	733525674631
1681	000000000377	037703770000	000003770346	037760632444	207642202640	605625775611	755716660000	000000000000
1729	000000000000	000000000000	000000000000	000000001725	610000000000	000017617614	735242100000	606325226224
1777	542252646056	254103621636	440517314157	070306547033	172240127765	702756751736	633571317026	471317224617
1825	735354767410	172051624644	745713641720	421056175537	435717204045	272550000000	173672151100	000000006064
1873	027527112632	655360572340	050524414455	172162024304	760764261761	761473533353	771717304740	000000000000
1921	176176147354	256360500000	000003770377	037700000000	033303540330	606317366773	172271326056	261667635172
1969	332100000000	000000000000	000000000000	000000000000	000000000000	000017256200	000000000000	176176147371
2017	420412176063	205053046264	031160562556	406046061473	173141566651	451426211722	402223015573	530217366342
2065	126735275415	172245714366	112074421720	511614662542	317417204213	247614760320	172040452725	500000001737
2113	540640521700	000060633601	175413003232	605724017050	662754271721	620243047607	642617617614	737233476560
2161	173145540000	000000001761	761473732557	463100000000	037703770377	000000000325	034503376063	123166660004
2209	334360562636	056116412206	000000000000	000000000000	000000000000	000000000000	000000000000	172563000000
2257	000000001761	761474104200	000060631376	621610102300	605625737630	432550071731	415627152613	410017224031
2305	464220454076	173663465545	604371771722	455207777511	363217205045	335612155727	172042161132	613721021717
2353	443672425000	000060460705	577777777777	606332437457	322632116057	244362137340	171517216124	474363134233
2401	176176147411	334377771726	760000000000	000017617614	741225536050	000000000377	037703770000	000003440315
2449	034660630524	746104013334	605626552744	473623220000	000000000000	000000000000	000000000000	000000000000
2497	000000001725	640000000000	000017617614	742741741217	606307260273	504157766056	261136771567	237717314156
2545	005510214630	172240407342	242440571736	635331564756	146317224531	764227447177	172047764502	356277341720
2593	422121243576	073317174436	724250000000	173570340750	740000006063	271000424527	053360572505	662016656037
2641	172161244743	631342331761	761474303337	656017307640	000000000000	176176147431	254746310000	000003770377
2689	037700000000	030703420311	606300211115	302031546056	267460005130	102700000000	000000000000	000000000000
2737	000000000000	000000000000	000017256500	000000000000	176176147446	417000006063	025600656716	356260562627
2785	013442623461	173141555311	430724061722	405021355706	626117366360	230342405106	172245146301	543104201720
2833	472647363660	506317204224	517247414645	171744367242	500000001736	721573400000	000060632354	635457001304
2881	605725500307	550704311721	612447436313	425317617614	744733337777	172662000000	000000001761	761474502543
2929	605000000000	037703770377	000000000333	030603376062	354676322150	736660562714	160450747516	000000000000
2977	000000000000	000000000000	000000000000	000000000000	172566000000	000000001761	761474654164	121760623703
3025	257006077476	605626444561	070372031731	415526424561	646217224057	502464767527	173663653144	562232271722
3073	450245352747	560617204655	430040021422	172042302315	273071131717	443672425000	000017375406	717217000000
3121	606320222456	140737066057	261231123777	224317216124	474363134233	176176147466	332765601731	432000000000
3169	000017617614	746725374631	000000000377	037703770000	000003130322	031060623305	532771070707	605627336201
3217	205463520000	000000000000	000000000000	000000000000	000000000000	000000001725	670000000000	000017617614
3265	750441540000	606234577360	402615616056	266213273712	753517314155	027052035711	172240667764	610734451736
3313	637257506537	644417224474	372647501570	172046025563	770732651720	423416755062	362617204216	765550000000
3361	604606735777	777777776063	147021233364	140060572654	675242320131	172160031731	236570261761	761475053323
3409	777717277460	000000000000	176176147506	253360500000	000003770377	037700000000	026703200302	606230444445
3457	011273526056	275333357446	473400000000	000000000000	000000000000	000000000000	000000000000	000017257000
3505	000000000000	176176147523	415012176062	323515562057	064560562677	644530535475	173141546012	200561701722
3553	407631103513	611517366400	131031420214	172244654662	705242271720	453072774645	354417204240	254611277164
3601	172042167655	500000001735	703337507400	000060631137	631022755103	605727174327	651662371721	600317312365
3649	702617617614	752433136560	173161540000	000000001761	761475252523	463100000000	037703770377	000000000333

FILE 0001 REC 0014 CH 5124

3697	027203306062	260407520417	705660562773	152364543166	000000000000	000000000000	000000000000	000000000000
3745	000000000000	172571000000	000000001761	761475426144	000060623012	1435010620	605627154020	517160231731
3793	415436300756	061417224105	635261766057	173664056102	404675431722	446026433531	755617204456	622107265274
3841	172042445266	043060241720	421676555000	030017367215	474000000000	606306102375	453016246057	276232471470
3889	324117216003	173123657026	176176147543	330777771731	422400000000	000017617614	754425176050	000000000377
3937	037703770000	000003130313	030160622344	054231522772	605630130644	511744100000	000000000000	000000000000
3985	000000000000	000000000000	000000001725	720000000000	000017617614	756141401217	606225711504	660260336056
4033	273316317013	112717314154	154220141162	172241151734	035746371736	641341273177	354117224454	565007406173
4081	172044042346	563256751720	425116554551	572717204216	765550000000	173754065772	170000006063	026162264102
4129	775260573025	357303526447	172160031731	236570261761	761475623303	656017305240	000000000000	176176147563
4177	251346310000	000003770377	037700000000	027503320265	606221043557	025157306056	303307467111	676100000000
4225	000000000000	000000000000	000000000000	000000000000	000017257300	000000000000	176176147600	413400006062
4273	234764500567	627260562750	764532520673	173141537551	753424601722	412454162404	640117366421	363716163466
4321	172244531647	320757011720	433116063413	621717204256	012740737037	172165302154	000000006046	066557777777
4369	777760623755	767306371510	605730705505	274777411721	567167025055	576217617614	760132777777	172751200000
4417	000000001761	761476022507	605000000000	037703770377	000000000264	031203216062	164511476217	603160563053
4465	202323552333	000000000000	000000000000	000000000000	000000000000	000000000000	172574000000	000000001761
4513	761476174130	121760622127	210106023023	605627666266	676253011731	415356507360	116217224134	130400400723
4561	173664273470	205247271722	445135370454	371217204256	635711516311	172042630176	507161311721	653021540000
4609	000017357033	075074000000	606236037746	262040546057	313414335735	547717215671	670250555762	176176147620
4657	327365601724	640000000000	000017617614	762125034631	000000000377	037703770000	000002760277	033360621406
4705	472717551176	605630734326	614630300000	000000000000	000000000000	000000000000	000000000000	000000001725
4753	750000000000	000017617614	763641240000	606217072402	374624626056	300452132643	274117314153	404227565147
4801	172241435333	262500311736	643542275573	752417224450	505354413475	172042043302	355165761720	427020760561
4849	402517216530	215400000000	173672153340	000000006062	343247676556	105160573177	726172654117	172156716702
4897	505557621761	761476373267	777717316124	000000000000	176176147640	247760500000	000003770377	037700000000
4945	032302710324	606211504706	233343556056	311400027620	563200000000	000000000000	000000000000	000000000000
4993	000000000000	000017257600	000000000000	176176147655	412012176062	146775461152	131060563022	444334620031
5041	173141532326	206124671722	415315245202	445517366443	567566514253	172244506015	172640761720	413203764440
5089	006017204275	562555653065	172165302154	000000001737	540651721700	000000000000		

FILE 0001 REC 0015 CH 5124

0001	606232616704	116102436057	324370725517	055317215671	670250555762	176176147656	326365601731	553400000000
0049	000017617614	765724734631	000000000377	037703770000	000003320267	031760620713	102021131234	605631344667
0037	454764320000	000000000000	000000000000	000000000000	000000000000	000000001725	770000000000	000017617614
0145	767441100000	606212511146	340411526056	304041451271	434717314153	070611231271	172241626042	746562711736
0193	645204620607	133517224452	007263554632	172040574746	404324011720	430332665712	342417206327	757200000000
0241	604606535777	777777776062	311146674633	472060573310	067246701455	172156153153	730645651761	761476753257
0289	777717315244	000000000000	176176147676	246760500000	000003770377	037700000000	033502650313	606204560571
0337	151702576056	315527711000	050400000000	000000000000	000000000000	000000000000	000000000000	000017264000
0385	000000000000	176176147713	410412176062	103322162022	066660563056	432506556655	173141527351	317344161722
0433	417226075764	042117366460	274235475302	172244532070	000141341720	400556523726	660317204311	220002443716
0481	172063277572	000000001735	703237507400	000060622742	314303330322	605733545143	457310251721	561531537306
0529	456517617614	771432476560	173147500000	000000001761	761477152457	463100000000	037703770377	000000000337
0577	026503076062	022173727144	026460563176	260236365557	000000000000	000000000000	000000000000	000000000000
0625	000000000000	172640400000	000000001761	761477324100	000060620616	116666504675	605630745056	053465171731
0673	415261044176	327117224201	754067124653	173664665550	132151111722	445506450714	516417177670	077144442047
0721	172043172610	106224561720	632775720000	030017367215	074000000000	605225737432	542302116057	342137725726
0769	450317215615	315373064565	176176147733	324377771731	446000000000	000017617614	773424536050	000000000377
0817	037703770000	000003350273	030360613773	153727524245	605632174057	525525120000	000000000000	000000000000
0865	000000000000	000000000000	000000001726	410000000000	000017617614	775140741217	606204016032	157311576056
0913	311261605542	546517314152	472740766742	172242114656	475353111736	647507034031	350117224457	420216202010
0961	171775451667	171542371720	432547172227	221617206327	757200000000	173754063772	170000006062	242616710641
1009	014460573466	531636307771	172156153153	730645651761	761477523237	656017314170	000000000000	176176147753
1057	244746310000	000003770377	037700000000	033003070277	606136556113	072700246056	324070575723	553000000000
1105	000000000000	000000000000	000000000000	000000000000	000017264140	000000000000	176176147770	407000006062
1153	016602311256	537560567130	761556544441	173141523643	416141031722	422121511626	260717366503	454266334225
1201	172244625016	515170031717	742254052661	521717204334	057521127136	172251274417	300000006046	070477777777
1249	777760622261	137733107047	605735341431	357741371721	561261414072	364317617614	777132337777	173076000000
1297	000000001761	761477722443	605000000000	037703770377	000000000323	032402746061	354046613520	342160563262
1345	364471214235	000000000000	000000000000	000000000000	000000000000	000000000000	172642000000	000000001761
1393	761500074064	121760613765	550704337514	605631471762	147422171731	415226377512	650717224230	771023454737
1441	173665117423	200420751722	446564160037	722617177301	152474774201	172043425551	724367171722	512744173000