

#533

HELIOS 1 & 2

8 SECOND AVERAGED MAGNETIC FIELD VECTOR DATA

HOURLY AVERAGED MAGNETIC FIELD VECTOR DATA

74-097A-01A & B

76-003A-01A & B

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1. INTRODUCTION:

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 This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system.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

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

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

2. ERRATA/CHANGE LOG:

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

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

Version	Date	Person	Page	Description of Change
01				
02				

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

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

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

4. CATALOG MATERIALS:

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

- b. Core Catalog Materials

HELIOS-A

8 SEC AVG MAG FIELD VECTOR DATA

74-097A-01A SPHE-00082

THIS DATA SET HAS BEEN RESTORED. ORIGINALLY IT CONTAINED FOUR 9-TRACK, 1600 BPI TAPES WRITTEN IN BINARY. THERE ARE TWO RESTORED TAPES. THE DR TAPES ARE 3480 CARTRIDGES AND THE DS TAPES ARE 9-TRACK, 6250 BPI. THE ORIGINAL TAPES WERE CREATED ON A PDP COMPUTER AND THEY WERE RESTORED ON AN IBM 9021 COMPUTER. THE DR AND DS NUMBERS ALONG WITH THE CORRESPONDING D NUMBERS AND THE TIME SPANS ARE AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
DR004831	DS004831	D047661	1-878	12/10/74 - 03/08/75
		D047665	879-1789	03/08/75 - 08/16/75
DR004832	DS004832	D047666	1-957	08/16/75 - 03/11/76
		D047667	958-1327	03/11/76 - 04/30/76

HELIOS-A

HOURLY AVERAGED FIELD VECTOR DATA

74-097A-01B SPHE-00081

THIS DATA SET HAS BEEN RESTORED. ORIGINALLY IT CONTAINED ONE 9-TRACK, 1600 BPI TAPE, WRITTEN IN BINARY. THERE IS ONE RESTORED TAPE. THE DR TAPE IS A 3480 CARTRIDGE AND THE DS TAPE IS 9-TRACK, 6250 BPI. THE ORIGNAL TAPE WAS CREATED ON A HP-3000, SERIES 2 COMPUTER AND WAS RESTORED ON AN IBM 9021 COMPUTER. THE DR AND DS NUMBER ALONG WITH THE CORRESPONDING D NUMBER AND THE TIME SPAN IS AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
DR004834	DS004834	D047662	1-2553	12/10/74 - 06/30/79

HELIOS-B

HOURLY AVG MAG FIELD VECTOR DATA

76-003A-01A

SPHE-00503

THIS DATA SET HAS BEEN RESTORED. ORIGINALLY IT CONTAINED ONE 9-TRACK, 1600 BPI TAPE WRITTEN IN BINARY. THERE IS ONE RESTORED TAPE. THE DR TAPE IS A 3480 CARTRIDGE AND THE DS TAPE IS 9-TRACK, 6250 BPI. THE ORIGINAL TAPE WAS CREATED ON A HP-3000 SERIES 2 COMPUTER AND WAS RESTORED ON AN IBM 9021 COMPUTER. THE DR AND DS NUMBER ALONG WITH THE CORRESPONDING D NUMBER AND THE TIME SPAN IS AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
DR004917	DS004917	D047663	1-1812	01/15/76 - 06/26/79

HELIOS-B

8 SEC AVG MAG FIELD VECTOR DATA

76-003A-01B SPHE-00324

THIS DATA SET HAS BEEN RESTORED. ORIGINALLY IT CONTAINED ONE 9-TRACK, 1600 BPI TAPE WRITTEN IN BINARY. THERE IS ONE RESTORED TAPE. THE DR TAPE IS A 3480 CARTRIDGE AND THE DS TAPE IS 9-TRACK, 6250 BPI. THE ORIGINAL TAPE WAS CREATED ON A PDP COMPUTER AND WAS RESTORED ON AN IBM 9021 COMPUTER. THE DR AND DS NUMBERS ALONG WITH THE CORRESPONDING D NUMBERS AND THE TIME SPANS ARE AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
DR004835	DS004835	D047664	1-1207	01/15/76 - 04/30/76

REQ. AGENT
GLS

RAND NO.
V0132

ACQ. AGENT
HKH

HELIOS A

8 SECOND AVERAGED MAGNETIC FIELD VECTOR DATA
HOURLY AVERAGED MAGNETIC FIELD VECTOR DATA

74-097A-01A&B

HELIOS B

HOURLY AVERAGED MAGNETIC FIELD VECTOR DATA
8 SECOND AVERAGED MAGNETIC FIELD VECTOR DATA

76-003A-01A&B

This data set catalog contains 7 magnetic tapes. Each tape is 1600, Binary, 9 track and multi-filed. The following list the D numbers and C numbers, number of files and time span of each tape. These tapes were created on a PDP computer.

HP 1000, 211002
(see next
page)

<u>D#</u>	<u>C#</u>	<u>FILES</u>	<u>TIME SPAN</u>	<u>SATELLITE ID</u>
D-47661	C-22208	878	12/10/74 - 03/08/75	(74-097A-01A) 8
D-47662	C-22209	2442	12/10/74 - 05/07/79	(74-097A-01B) H
	C-22219	111	05/07/79 - 06/30/79	" " H
D-47663	C-22210	1812	01/15/76 - 06/26/79	(76-003A-01A) H
D-47664	C-22211	1207	01/15/76 - 04/30/76	(76-003A-01B) 8
D-47665	C-22216	911	03/08/75 - 08/16/75	(74-097A-01A) 8
D-47666	C-22217	957	08/16/75 - 03/11/76	" " 8
D-47667	C-22218	370	03/11/76 - 04/30/76	" " 8



HELIOS

MEMORANDUM

TO : File: Acquisition, Ralph Post, John Freeman

DATE: December 12, 1982

FROM : John Freeman

SUBJECT : Telecon to Prof. F. M. Neubauer on Dec. 13, 1982

1. Regarding the problem of reading the Helios Magnetometer Data Sets 74-097A-01B and 76-003A-01A, he says these tapes were written by a H. P. 3000 computer, series 2. Also H. Beinroth is no longer at Braunschweig. The new Cognizant scientist replacing Beinroth is Mr. Ruprecht [phone no. (0531) 391-5230]. Mr. Ruprecht is currently hospitalized, however, and is not expected home before Christmas. He suggested calling Mr. Volkner, phone no. (0531)-391-5237. Mr. Volkner might know the bit format or he might know how to get in touch with Beinroth who might remember.
2. Regarding questions on the Helios 1-2 magnetometer data formats:
 - A. The time tag is spacecraft event time-not earth received time.
 - B. The magnetometer offsets (words 51-55) have been applied to the IMF data already. A user need not make these corrections.
 - C. Ditto for the misalignment angle (words 57-62).
3. The Vector rate (word 11) is the number of vectors per second. The sample interval is 0.25 seconds so for 4 vectors persecond the Vector rate would be 4, etc.
4. The Distribution Mode (word 14) identifies whether the data was taken in real time or from S/C memory, and at what bit rate.
5. He did not recall the meaning of the format # (word 12).
6. The S/C coordinate data were gathered from the ESA Space Operations Center and he did not recall the exact definition of Ecliptical longitude used.
7. Heliographic Latitude refers to the angular distance above and below the solar equator.

cc: J. I. Vette
H. K. Hills
D. Sawyer
C. Wallace

E2ADR/E2AVE TAPE FORMAT

6250
APES ARE 9 TRACK, 800 OR 1600 BPI, BINARY (CHAR. IN ASCII)
WORDLENGTH IS 16 BITS (LEFTMOST BIT IS BIT 0)

INTEGER REPRESENTATION : 1 WORD TWO'S COMPLEMENT

REAL REPRESENTATION : 2 WORDS

BIT 0 : SIGN

BITS 1-9 : EXPONENT (BIASED BY +256)

BITS 10-31: POSITIVE FRACTION (MINUS 1)

LONG REPRESENTATION : 4 WORDS

BITS 0-9 : SAME AS REAL

BITS 10-63: POSITIVE FRACTION

INFORMATION PART OF RECORD

1 INTEGER TYPE OF RECORD

100 : TAPE HEADER RECORD

9 : SCIENCE RECORD (AVERAGE TAPES)

999 : TAPE TRAILER RECORD

2 INTEGER LENGTH OF RECORD IN WORDS

3 INTEGER # OF DAYS SINCE LAUNCH YEAR

(1 = 1ST JAN 1974 FOR HE-A / 1ST JAN 1976 FOR HE-B)

4 LONG FRACTION OF DAY (DECIMAL)

10 INTEGER # OF VECTORS IN RECORD

11 INTEGER VECTOR RATE (0/SAMPLING RATE)

12 INTEGER FORMAT #

13 INTEGER BIT RATE

14 INTEGER DISTRIBUTION MODE

15 LONG VECTOR STEP TIME IN FRACTION OF DAY

22 INTEGER MISSION (HELIOS A = 90, HELIOS B = 91)

29 REAL ECLIPTICAL LATITUDE OF S/C SPIN AXIS IN RADIANS

31 REAL ECLIPTICAL LONGITUDE OF S/C SPIN AXIS IN RADIANS

35 REAL ECLIPTICAL LONGITUDE, COUNTED FROM MEAN EQUINOX,
OF HELIOS IN RADIANS

37 REAL DISTANCE FROM SUN IN A.U.

41 REAL HELIOGRAPHIC LATITUDE OF HELIOS IN RADIANS

43 REAL H-S-E ANGLE

51 REAL OFFSET IN X IN GAMMA

53 REAL OFFSET IN Y IN GAMMA

55 REAL OFFSET IN Z IN GAMMA

57 INTEGER MISALIGNMENT ANGLE LAMBDA IN 1/10 DEGREES

58 INTEGER ALPHA IN 1/10 DEGREES

59 INTEGER GAMMA IN 1/10 DEGREES

60 INTEGER DELTA IN 1/10 DEGREES

61 INTEGER EPSILON IN 1/10 DEGREES

62 INTEGER MEAN DEVIATION * SQRT(3) OF LAST MISALIGNMENT
CALCULATION IN 1/100 DEGREES

67 LONG TRIP LIGHT TIME IN FRACTION OF DAY

71 LONG SPIN PERIOD IN FRACTION OF DAY

DATA PART OF RECORD (TYPE 9=AVERAGE)

81 INTEGER FIELD COMPONENT IN XSE IN 1/100 GAMMA

82 INTEGER FIELD COMPONENT IN YSE IN 1/100 GAMMA

LUNG

SPIN PERIOD IN FRACTION OF DAY

DATA PART OF RECORD (TYPE 9=AVERAGE)

82	INTEGER	FIELD COMPONENT IN XSE IN 1/100 GAMMA
83	INTEGER	FIELD COMPONENT IN YSE IN 1/100 GAMMA
84	INTEGER	FIELD COMPONENT IN ZSE IN 1/100 GAMMA
	INTEGER	SIGMA X

85 INTEGER SIGMA Y (")
 86 INTEGER SIGMA Z (")
 87 INTEGER SIGMA F (")
 88 INTEGER F (COMP. FROM 81/83) IN 1/10 GAMMA
 89 INTEGER INTEGRATED STATUS WORD

REPETITIONS OF WORD 81 TO 89 FOR N VECTORS
 N AS SPECIFIED IN WORD 10

GENERAL REMARKS

MAX. LENGTH OF TOTAL RECORD IS LESS THAN 670 WORDS

FOR TYPE 9 RECORDS TIMES REFER TO THE MIDDLE OF THE FIRST
 AVERAGE INTERVAL.

INTEGRATED STATUS WORD FORMAT
 (BITS COUNTED FROM 0 : LEFTMOST BIT)

BIT 4-6	BIT 7-9	BIT 10-12	BIT 13-15
QUALITY	QUALITY	INDICATION	FLIP STATUS
(BEST)	(WORST)	FOR # OF	
(AVE. TAPE)		VECTORS USED	
		FOR AVERAGE	

QUALITY RANGING FROM 0 TO 7, 0 CORRESPONDING TO FINE
 AND 6 TO POOR QUALITY WHILE 7 FLAGS MISSING DATA,
 VECTORS WITH QUALITIES UP TO 3 CAN BE TREATED AS GOOD.

INDICATION FOR # OF VECTORS USED FOR AVERAGE:

0 :: = 0	4 :: < 50
1 :: < 5	5 :: < 100
2 :: < 10	6 :: < 500
3 :: < 25	7 :: >= 500

FLIP STATUS 0 MEANS UNFLIPPED STATUS (U PARALLEL SPIN
 AXIS), 1 FLIPPED STATUS

E2ADRTAPE-HEADER:

100

20

*** E2ADR TAPE HEADER/HELIOS A *** (HELIOS B RESP.)

E2ADRTAPE-TRAILER:

2*EOF

999

NOTE :

AN END-OF-FILE IS WRITTEN AFTER EVERY FULL HOUR
 IF THERE ARE AT LEAST 10 RECORDS IN THE FILE

** SAMPLE LISTING OF HELIOS EXPERIMENT 2 DATA

**
 ** ITEMS ARE LISTED ONE PER LINE WITH WORD NUMBERS IN BRACKETS
 ** (ADD 1 TO OBTAIN THE WORD NUMBER OF THE TAPE DESCRIPTION)
 ** IN THE DATA PART OF THE RECORD THE INFORMATION FOR EVERY
 * VECTOR IS LISTED AS 8 DECIMAL AND 1 OCTAL INTEGERS (STATUS).

** CHARACTER REPRESENTATION:

**
 ** - INTEGER : DECIMAL AND OCTAL (Z)
 ** - REAL : REAL AND OCTAL
 ** - TIME : TIME (DAYS:HOURS:MIN.:SEC.:MSEC.), LONG AND OCTAL

** THE CHARACTERS IN THE HEADER ARE CODED IN ASCII.
 **

+
 HEADER RECORD:

[01] 100 X000144
 [11] 20 X000024
 [21] **** E2ADR TAPE HEADER/HELIOS A ****

+
 SCIENCE RECORD:

[01] 9 X000011
 [11] 107 X000153
 [21] 344 X000530
 [31] 0:10:04:31:405 .419807933615388D+00 X037653 X074210 X060572 X136000
 [91] 3 X000003
 [141] 0:00:00:08:000 .925925925925926D-04 X036241 X013442 X101471 X042245
 [211] 90 X000132
 [281] .3815270E-01 X037316 X021401
 [301] .6068357E+01 X040241 X013776
 [341] .1354078E+01 X040026 X124465
 [361] .9847525E+00 X037776 X006137
 [401] -.4837357E-02 X137017 X040530
 [421] -.5860557E-03 X136514 X150304
 [801] -2680 2578 1860 44 63 60 18 416 X000040
 [891] -2772 2582 1820 61 46 31 16 420 X000040
 [981] -2856 12742 1796 71 72 73 24 435 X000040

EZADR/EZAVE TAPE FORMAT

6250
TAPES ARE 7 TRACK, 500 OR 1500 BPI, BINARY (CHAR. IN ASCII)
WORDLENGTH IS 16 BITS (LEFTMOST BIT IS BIT 0)

INTEGER REPRESENTATION : 1 WORD, TWO'S COMPLEMENT

REAL REPRESENTATION : 2 WORDS.

BIT 0 : SIGN

BITS 1-9 : EXPONENT (BIASED BY +256)

BITS 10-31: POSITIVE FRACTION (MINUS 1.)

LONG REPRESENTATION : 4 WORDS.

BITS 0-9 : SAME AS REAL

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INFORMATION PART OF RECORD

1	INTEGER	TYPE OF RECORD
		100 - TAPE HEADER RECORD
		9 - SCIENCE RECORD (AVERAGE TAPES)
		999 - TAPE TRAILER RECORD
2	INTEGER	LENGTH OF RECORD IN WORDS
3	INTEGER	# OF DAYS SINCE LAUNCH YEAR
		(1 = 1ST JAN 1974 FOR HE-A / 1ST JAN 1976 FOR HE-B)
4	LONG	FRACTION OF DAY (DECIMAL)
10	INTEGER	# OF VECTORS IN RECORD
11	INTEGER	VECTOR RATE (3/SAMPLING RATE)
12	INTEGER	FORMAT #
13	INTEGER	BIT RATE
14	INTEGER	DISTRIBUTION MODE
15	LONG	VECTOR STEP TIME IN FRACTION OF DAY
22	INTEGER	MISSION (HELIOS A = 90, HELIOS B = 91)
29	REAL	ECLIPTICAL LATITUDE OF S/C SPIN AXIS IN RADIANS
31	REAL	ECLIPTICAL LONGITUDE OF S/C SPIN AXIS IN RADIANS
35	REAL	ECLIPTICAL LONGITUDE, COUNTED FROM MEAN EQUINOX, OF HELIOS IN RADIANS
37	REAL	DISTANCE FROM SUN IN A.U.
41	REAL	HELIOGRAPHIC LATITUDE OF HELIOS IN RADIANS
43	REAL	H - S - E ANGLE
51	REAL	OFFSET IN X IN GAMMA
53	REAL	OFFSET IN Y IN GAMMA
55	REAL	OFFSET IN Z IN GAMMA
57	INTEGER	MISALIGNMENT ANGLE LAMBDA IN 1/10 DEGREES
58	INTEGER	ALPHA IN 1/10 DEGREES
59	INTEGER	GAMMA IN 1/10 DEGREES
60	INTEGER	BETA IN 1/10 DEGREES
61	INTEGER	EPSILON IN 1/10 DEGREES
62	INTEGER	MEAN DEVIATION * SQRT(3) OF LAST MISALIGNMENT CALCULATION IN 1/100 DEGREES
67	LONG	TRIP LIGHT TIME IN FRACTION OF DAY
71	LONG	SPIN PERIOD IN FRACTION OF DAY

DATA PART OF RECORD (TYPE 9=AVERAGE)

81	INTEGER	FIELD COMPONENT IN XSE IN 1/100 GAMMA
82	INTEGER	FIELD COMPONENT IN YSE IN 1/100 GAMMA
83	INTEGER	FIELD COMPONENT IN ZSE IN 1/100 GAMMA
84	INTEGER	SIGMA X (" ")

07 INTEGER SIGMA F (" -)
 88 INTEGER F (COMP. FROM 81/83) IN 1/10 GAMMA
 89 INTEGER INTEGRATED STATUS WORD

REPETITIONS OF WORD 81 TO 89 FOR N VECTORS
 N AS SPECIFIED IN WORD 10

GENERAL REMARKS

MAX. LENGTH OF TOTAL RECORD IS LESS THAN 670 WORDS

FOR TYPE 9 RECORDS TIMES REFER TO THE MIDDLE OF THE FIRST
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 (BITS COUNTED FROM 0 : LEFTMOST BIT)

BIT 4-6	BIT 7-9	BIT 10-12	BIT 13-15
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(BEST)	(WORST)	FOR # OF	
(AVE. TAPE)		VECTORS USED	
		FOR AVERAGE	

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 AND 6 TO POOR QUALITY WHILE 7 FLAGS MISSING DATA.
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2 :: < 10	6 :: < 500
3 :: < 25	7 :: >= 500

FLIP STATUS 0 MEANS UNFLIPPED STATUS (U PARALLEL SPIN
 AXIS), 1 FLIPPED STATUS

E2ADRTAPE-HEADER:

100
 20

*** E2ADR TAPE HEADER/HELIOS A *** (HELIOS B RESP.)

E2ADRTAPE-TRAILER:

2*EDF
 999

NOTE :

AN END-OF-FILE IS WRITTEN AFTER EVERY FULL HOUR
 IF THERE ARE AT LEAST 10 RECORDS IN THE FILE

```

**
** ITEMS ARE LISTED ONE PER LINE WITH WORD NUMBERS IN BRACKETS
** ( ADD 1 TO OBTAIN THE WORD NUMBER OF THE TAPE DESCRIPTION) .
** IN THE DATA PART OF THE RECORD THE INFORMATION FOR EVERY
** VECTOR IS LISTED AS 8 DECIMAL AND 1 OCTAL INTEGERS (STATUS).
**
** CHARACTER REPRESENTATION:
**
** - INTEGER : DECIMAL AND OCTAL (%)
** - REAL : REAL AND OCTAL
** - TIME : TIME (DAYS:HOURS:MIN.:SEC.:MSEC.), LONG AND OCTAL
**
** THE CHARACTERS IN THE HEADER ARE CODED IN ASCII.
**

```

HEADER RECORD:

```

I 01 100 Z000144
I 11 20 Z000024
I 21 **** E2ADR TAPE HEADER/HELIOS A ****

```

SCIENCE RECORD:

```

I 01 9 Z000011
I 11 107 Z000153
I 21 344 Z000530
I 31 0:10:04:31:405 .419807933615388D+00 Z037653 Z074210 Z060572 Z136000
I 91 3 Z000003
I 141 0:00:00:08:000 .925925925925926D-04 Z036241 Z013442 Z101471 Z042245
I 211 90 Z000132
I 281 .3815270E-01 Z037316 Z021401
I 301 .6068357E+01 Z040241 Z013776
I 341 .1354078E+01 Z040026 Z124465
I 361 .9847525E+00 Z037776 Z006137
I 401 -.4837357E-02 Z137017 Z040530
I 421 -.5860557E-03 Z136514 Z150304
I 801 -2680 2578 1860 44 63 60 18 416 Z000040
I 891 -2772 2582 1820 61 46 31 16 420 Z000040
I 981 -2856 2742 1796 71 72 73 24 435 Z000040

```

D-47661

(D2004831)
12/10/74 - 3/8/75

REGULAR OCTAL DUMP OF LR1013

FILE 1	RECORD 1	53 BYTES							
(0)	000620000502	505212425040	212311012105	104025040520	212201102124	050421251057	220425142224	752310040440	
(48)	1242505212								

REGULAR OCTAL DUMP OF LR1013

FILE 1	RECORD 2	285 BYTES 344							
(0)	000044003260	053017725570	420605725700	000000000000	000014000040	000102000000	000362410562	120316242245	
(48)	000000000000	000000055000	000000000000	000000000000	000000766342	140120120427	774000000000	010005524465	
(96)	177770142760	000000000276	036405305724	632061000000	000000000000	000000000000	001401000000	027751463146	
(144)	176551463157	777000000000	031771340000	000000000000	000000000000	000016664024	550540000000	007373376065	
(192)	061233376060	000000000000	000000000000	000000172610	024110072100	005400037400	170000220032	000010172454	
(240)	024130070700	007500027000	076000200032	200010172330	025330070100	010700044000	222000300033	140010	

REGULAR OCTAL DUMP OF LR1013

FILE 878	RECORD 1	1749 BYTES							
(0)	000044024400	064717765177	213602650300	000000000000	000400000100	000101000000	000362410562	120316242245	
(48)	000000000000	000000055000	000000000000	000000000000	000001001072	541520106626	112000000000	010030173341	
(96)	177310645720	000000000277	177473261770	224523200000	000000000000	000000000000	001400675341	327741217312	
(144)	177156051637	777100000000	035770120000	000000000000	000000000000	000017366207	302603540000	007370163226	
(192)	743736500060	000000000000	000000000000	000000173425	017364025400	003200031000	060000200023	300006173375	
(240)	017254024140	004000017000	110000160023	300006173407	017244025760	003300023000	056000150023	300006173412	
(288)	017430024060	004300041400	074000240023	300006173373	017550022520	002300024400	124000200023	400006173406	
(336)	017404016120	003200056400	136000330023	140006173404	017430016100	004300042000	170000300023	140006173452	
(384)	017154020060	006700124400	160000560022	740006173522	017774024440	010300044400	142000350023	240006173523	
(432)	020074020620	012100102000	214000510023	200006173351	017420021640	007300045400	200000350023	340006173311	
(480)	017060022720	005100035400	160000270023	340006173460	017130021740	012600061000	324000520022	740006173702	
(528)	020070020640	015300075400	334000610022	600006173531	017454017360	006400062400	222000420022	700006173576	
(576)	020040017500	007200075000	166000470023	000006173304	016204022120	011500037400	334000450023	000006173150	
(624)	015230022620	005200022000	124000210023	040006173201	014610030040	006700036000	224000330022	740006173517	
(672)	016524020040	017500116400	544001030022	400006174013	020024014520	004400034000	072000220022	200006174252	

D-47661

FILE 878

RECORD 7

1749 BYTES

423

(0)	000044024400	064717767414	655661125540	000000000000	000400000100	000101000000	000362410562	120316242245
(48)	000000000000	000000055000	000000000000	000000000000	000001001072	605520106633	550000000000	010030204057
(96)	177310263300	000000000277	177422631770	240670000000	000000000000	000000000000	001400675341	327741217312
(144)	177176773357	777100000000	035770120000	000000000000	000000000000	000000000000	000017366250	007370163226
(192)	743736500060	000000000000	000000000000	000000172415	776753753360	003600047000	154000310022	000006172532
(240)	777207752040	014300042400	140000400021	500006172646	777113752420	012200017400	146000310021	100006172752
(288)	776277756400	012000057400	202000430020	440006173050	776353755540	007100075000	174000450020	140006173043
(336)	776503752300	004500025000	140000240020	300006173076	776723753460	005000033400	272000350020	140006173055
(384)	777117753160	005200022400	140000230020	200006173051	777407753600	003300015000	100000140020	200006173100
(432)	777213752560	004300027000	150000240020	140006173077	777673750620	005500013400	200000240020	240006173106
(480)	776437751040	005400041000	534000610020	200006173057	001557743440	005500026400	100000220020	600006173133
(528)	000237741520	004200031000	656000700020	440006173047	777067740760	005100026400	130000230020	740006173011
(576)	777753740560	005600012000	152000220021	100006173065	001337737740	006700022400	416000460020	740006173100
(624)	002337740020	005300035000	134000250021	000006173125	002663741240	004500033000	204000270020	640006173026
(672)	004377752020	005000055400	240000400020	700006173013	003363746320	004500103000	176000460020	740006173013
(720)	003013744340	004200017000	146000210021	000006173044	002453742720	005200026000	172000260020	740006173130
(768)	004017743200	005200013000	226000260020	640006173055	003313742660	003700025000	234000300021	000006173206
(816)	004263741640	010400045400	334000450020	540006173202	004213741400	007400042000	210000360020	540006173210
(864)	003777737760	004700021000	340000370020	600006173203	003447740260	005200017400	316000350020	540006173243
(912)	003367737060	006500042000	176000330020	500006173304	003003740060	007400070000	516000630020	200006173314
(960)	001637736620	006600040400	304000400020	200006173264	001607741360	006400050000	340000450020	100006173264
(1008)	002157743000	013100130000	532001020020	040006173235	001563742340	004400031400	324000370020	140006173254
(1056)	001763741160	007000056400	462000570020	200006173342	002533735760	007400050400	456000610020	200006173244
(1104)	001363741260	007000043400	334000440020	200006173240	003517743760	005600031000	302000360020	200006173333
(1152)	004637743420	006600031400	5000000540020	140006173431	004153741260	005500031400	174000270017	700006173436
(1200)	004257740220	007400140400	662001120017	740006173175	001437736360	011500056400	234000440020	540006173274
(1248)	000607724760	013400151000	642001150021	100006173156	001453724540	010100036400	300000410021	500006173610
(1296)	000773713460	024100122400	452001050021	100006173524	777213715000	016100076400	372000640021	200006173366
(1344)	776667716420	010100026400	164000310021	440006173517	776103713220	013400056400	326000520021	400006173335
(1392)	776303723200	023600201400	330001200021	140006173344	777663722400	031600252400	416001510021	140006174115
(1440)	774503702160	022000076400	310000660021	500006173734	774517704640	010500036400	254000370021	640006173772
(1488)	773123706600	005400041400	350000430021	500006174176	775273716060	042000333002	472003230017	600006173636
(1536)	001737732120	007600057400	412000540017	400006173656	001063731640	007700033400	176000340017	300006173562
(1584)	001407736000	010400061400	564000670017	240006173541	003307743360	017500162000	332001060017	140006173370
(1632)	003157744520	005000046400	310000410017	540006173365	003273745640	006600014400	242000300017	500006173360
(1680)	002413750040	005100030000	210000270017	300006173402	003003750360	004700021000	172000240017	240006173410
(1728)	003443750720	005300023400	074000200017	240006				

REGULAR DCTAL DUMP OF LR1013

FILE 878

RECORD 8

0 BYTES

(0)

DUMP OF TAPE GAIL8

HELIOS-A

D-47661

INPUT TAPE GAIL8 ON MT2
DATA INPUT 09 NF 878 SR 1 2 1 SR 878 LAST 1

12/10/74 - 03/08/75

C-22208

FILE	1	RECORD	2	LENGTH	285BYTES
(0)	000044003260	053017725570	424605725700	000000000000	000014000040
(48)	000000000000	000000055000	000000000000	000000000000	000000766342
(96)	177770142760	000000000276	036405305724	632061000000	000000000000
(144)	176551463157	777000000000	031771340000	000000000000	000000000000
(192)	061233376060	000000000000	000000000000	000000172610	024110072100
(240)	024130070700	007500027000	076000200032	200010172330	025330070100

FILE	INPUT RECS.	DATA RECORDS INPUT	MAX. SIZE	READ ERROR SUMMARY	INPUT RETRIES
1	12	12	1312	PERM ZERO B SHORT UNDEF.	#RECS. TOTAL#
FILE 878	RECORD 1	LENGTH 7	1749BYTES		
(0)	000044024400	064717767414	655661125540	000000000000	000400000100
(48)	000000000000	000000055000	000000000000	000000000000	000001001072
(96)	177310263300	000000000277	177422631770	240670000000	000000000000
(144)	177176773357	777100000000	035770120000	000000000000	0000017366250
(192)	743736500060	000000000000	000000000000	000000172415	776753753360
(240)	777207752040	014300042400	140000400021	500006172646	777113752420
(288)	776277756400	012000057400	202000430020	440006173050	776353755540
(336)	776503752300	004500025000	140000240020	300006173076	776723753460
(384)	777117753160	005200022400	140000230020	200006173051	777407753600
(432)	777213752560	004300027000	150000240020	140006173077	777673750620
(480)	776437751040	005400041000	534000610020	200006173057	001557743440
(528)	000237741520	004200031000	656000700020	440006173047	777067740760
(576)	777753740560	005600012000	152000220021	100006173065	001337737740
(624)	002337740020	005300035000	134000250021	000006173125	002663741240
(672)	004377752020	005000055400	240000400020	700006173013	003363746320
(720)	003013744340	004200017000	146000210021	000006173044	002453742720
(768)	004017743200	005200013000	226000260020	640006173055	003313742660
(816)	004263741640	010400045400	334000450020	540006173202	004213741400
(864)	003777737760	004700021000	340000370020	600006173203	003447740260
(912)	003367737060	006500042000	176000330020	500006173304	003003740060
(960)	001637736620	006600040400	304000400020	200006173264	001607741360
(1008)	002157743000	013100130000	532001020020	040006173235	001563742340
(1056)	001763741160	007000056400	462000570020	200006173342	002533735760
(1104)	001363741260	007000043400	334000440020	200006173240	003517743760
(1152)	004637743420	006600031400	500000540020	140006173431	004153741260
(1200)	004257740220	007400140400	662001120017	740006173175	001437736360
(1248)	000607724760	013400151000	642001150021	100006173156	001453724540
(1296)	000773713460	024100122400	452001050021	100006173524	777213715000
(1344)	776667716420	010100026400	164000310021	440006173517	776103713220
(1392)	776303723200	023600201400	330001200021	140006173344	777663722400
(1440)	774503702160	022000076400	310000660021	500006173734	774517704640
(1488)	773123706600	005400041400	350000430021	500006174176	775273716060
(1536)	001737732120	007600057400	412000540017	400006173656	001063731640
(1584)	001407736000	010400061400	564000670017	240006173541	003307743360
(1632)	003157744520	005000046400	310000410017	540006173365	003273745640
(1680)	002413750040	005100030000	210000270017	300006173402	003003750360
(1728)	003443750720	005300023400	074000200017	240006	

FILE	INPUT RECS.	DATA RECORDS INPUT	MAX. SIZE	READ ERROR SUMMARY	INPUT RETRIES
878	7	8	1312	PERM ZERO B SHORT UNDEF.	#RECS. TOTAL#
878	7	8	1312	0 1 0 0	1 1

EOJ DUMP STOPPED AFTER FILE 878 # OF PERMANENT READ ERRORS 0

START TIME 03/25/82 18:59:22 STOP TIME 03/25/82 19:05:09

HELIOS - A (74-097A-01B)

~~SECRET~~ DR/OS 004834
12/10/74 - 6/30/79

REGULAR DCTAL DUMP OF LR1022

FILE 1	RECORD 2	237 BYTES							
(0)	000044002620	0530 17727777	777777777700	000000000000	000004000040	000102000000	000373252525	252525252525	
(48)	000000000000	000000055000	000000000000	000000000000	000000766342	147620120427	772000000000	010005524457	
(96)	177770142760	000000000276	036402465724	627275000000	000000000000	000000000000	001401000000	027751463146	
(144)	176551463157	777000000000	031771340000	000000000000	000000000000	000016664024	550540000000	007373376065	
(192)	061233376060	000000000000	000000000000	000000174456	013560014340	145300601003	070021160017	300034	

REGULAR DCTAL DUMP OF LR1022

FILE 2553	RECORD 6	237 BYTES							
(0)	000044002620	3727 17776525	252525645400	000000400000	000004010000	000300010000	016373252525	252525252525	
(48)	000000000000	000000055000	000000000000	000000000000	000001001074	560217777247	523364256352	507765677055	
(96)	177630144653	772051211477	030425402004	163317000000	000000000000	000000000000	001400230450	767763425447	
(144)	177052676340	002200000000	044033760000	000000000000	000000000000	000017445345	303474700000	007370227550	
(192)	227550227560	000000000000	000000000000	000000002567	770023754440	027600243401	762003260014	040014	

DUMP OF TAPE GAIL-9B

1052

INPUT TAPE GAIL-9B ON MT4

DATA INPUT 09 NF 2442 SR 1 2 1 SR 2442 LAST 1

HECROS A

D-47662

12/10/74 - 05/07/79

C-22209

FILE	1	RECORD	2	LENGTH	237BYTES
(0)	000044002620	053017727777	777777777700	000000000000	000004000040
(48)	000000000000	000000055000	000000000000	000000000000	00000766342
(96)	177770142760	000000000276	036402465724	627275000000	000000000000
(144)	176551463157	777000000000	031771340000	000000000000	000000000000
(192)	061233376060	000000000000	000000000000	000000174456	013560014340

FILE	INPUT	DATA RECORDS	MAX.	READ ERROR SUMMARY				INPUT RETRIES	
	RECS.	INPUT	SIZE	PERM	ZERO B	SHORT	UNDEF.	#RECS.	TOTAL#
1	12	12	178	0	0	0	0	0	0

FILE	2442	RECORD	4	LENGTH	237BYTES
(0)	000044002620	364117722525	252525706000	000000000000	000004000200
(48)	000000000000	000000055000	000000000000	000000000000	00001001110
(96)	000000000000	000000000000	000000000000	000000000000	000000000000
(144)	600236320120	005000002400	121745040000	000000000000	000000000000
(192)	155770324300	000000000000	000000000000	000000171527	011153777260

FILE	INPUT	DATA RECORDS	MAX.	READ ERROR SUMMARY				INPUT RETRIES	
	RECS.	INPUT	SIZE	PERM	ZERO B	SHORT	UNDEF.	#RECS.	TOTAL#
2442	4	5	178	0	0	0	0	0	0

EOM INDICATED WHILE READING FILE 2442 # OF PERMANENT READ ERRORS 0

START TIME 03/26/82 13:43:03

STOP TIME 03/26/82 13:54:36

\$\$

\$AVF IN

\$AVF IN

DUMP OF TAPE GAIL-9A

INPUT TAPE GAIL-9A ON MT4

DATA INPUT 09 NF 111 SR 1 2 1 SR 111 LAST 1

HELIOS
AD-47662-20F2
05/02/79-06/30/79
C-22219

FILE	1	RECORD	2	LENGTH	237BYTES
(0)	000044002620	3641	17735252	525253161000	000000000000
(48)	000000000000	000000055000	000000000000	000000000000	000001001100
(96)	177143025644	011361374277	064647755770	134443200000	000000000000
(144)	600215666160	005000002400	121745040000	000000000000	000000000000
(192)	155770324300	000000000000	000000000000	000000171243	007340023740

FILE	INPUT	DATA RECORDS	MAX.	READ ERROR SUMMARY				INPUT RETRIES	
	RECS.	INPUT	SIZE	PERM	ZERO B	SHORT	UNDEF.	#RECS.	TOTAL#
1	7	7	178	0	0	0	0	0	0

FILE	111	RECORD	6	LENGTH	237BYTES
(0)	000044002620	3727	17776525	252525645400	0000004010000
(48)	000000000000	000000055000	000000000000	000000000000	000001001074
(96)	177630144653	772051211477	030425402004	163317000000	000000000000
(144)	177052676340	002200000000	044033760000	000000000000	000000000000
(192)	227550227560	000000000000	000000000000	000000002567	770023754440

FILE	INPUT	DATA RECORDS	MAX.	READ ERROR SUMMARY				INPUT RETRIES	
	RECS.	INPUT	SIZE	PERM	ZERO B	SHORT	UNDEF.	#RECS.	TOTAL#
111	6	7	178	0	0	0	0	0	0

EOJ DUMP STOPPED AFTER FILE 111 # OF PERMANENT READ ERRORS 0

START TIME 03/26/82 13:22:28 STOP TIME 03/26/82 13:23:14

HELIOS-B (76-003A-01A)

~~15/15/76~~ DS 004917
1/15/76-6/26/79

REGULAR DCTAL DUMP OF LR1027

FILE 1	RECORD 2	237 BYTES							
(0)	000044002620	001717715252	525252525252	000000000000	000004000040	000102000000	000373252525	252525252525	
(48)	000000000000	000000055400	000000000000	000000000000	000000767230	513317725373	614000000000	010017641546	
(96)	177767443220	000000000277	041134745725	310032600000	000000000000	000000000000	000375463146	327725075314	
(144)	200433314637	777300000000	027767730000	000000000000	000000000000	000016677233	061031000000	007374742325	
(192)	715740110640	000000000000	000000000000	000000175553	006754055440	025000140000	450003040015	000010	

REGULAR DCTAL DUMP OF LR1027

FILE 1812	RECORD 1	237 BYTES							
(0)	000044002620	237217754000	0000000012600	000000000000	000004004000	000300020000	000373252525	252525252525	
(48)	000000000000	000000055400	000000000000	000000000000	000003001100	122720104307	245364513515	410007041351	
(96)	177655230703	747611013676	403271712005	663361600000	000000000000	000000000000	000400007023	127760122273	
(144)	600646165177	776500010000	047767300000	000000000000	000000000000	000017453504	703704020000	007367755627	
(192)	246073124140	000000000000	000000000000	000000001777	003253762440	030700176402	316002740010	401554	

DUMP OF TAPE GAIL-10

HELIOB-B

D-47663

INPUT TAPE GAIL-10 ON MT4
 DATA INPUT 09 NF 1812 SR 1 2 1 SR 1812 LAST 1

01/15/76 - 06/26/79

C-22210

FILE	1	RECORD	215	LENGTH	237	BYTES							
(0)	000044002620	001717715252	525252525252	000000000000	000004000040	000102000000	000373252525	252525252525					
(48)	000000000000	000000055400	000000000000	000000000000	000000767230	513317725373	614000000000	010017641546					
(96)	177767443220	000000000277	041134745725	310032600000	000000000000	000000000000	000375463146	327725075314					
(144)	200433314637	777300000000	027767730000	000000000000	000000000000	000016677233	061031000000	007374742325					
(192)	715740110640	000000000000	000000000000	000000175553	006754055440	025000140000	450003040015	000010					

FILE	INPUT	DATA RECORDS	MAX.	READ ERROR SUMMARY				INPUT RETRIES	
	RECS.	INPUT	SIZE	PERM	ZERO B	SHORT	UNDEF.	#RECS.	TOTAL#
1	12	12	178	0	0	0	0	0	0

FILE	1812	RECORD	1274	LENGTH	237	BYTES							
(0)	000044002620	237217754000	000000012600	000000000000	000004004000	000300020000	000373252525	252525252525					
(48)	000000000000	000000055400	000000000000	000000000000	000003001100	122720104307	245364513515	410007041351					
(96)	177655230703	747611013676	403271712005	663361600000	000000000000	000000000000	000400007023	127760122273					
(144)	600646165177	776500010000	047767300000	000000000000	000000000000	000017453504	703704020000	007367755627					
(192)	246073124140	000000000000	000000000000	000000001777	003253762440	030700176402	316002740010	401554					

FILE	INPUT	DATA RECORDS	MAX.	READ ERROR SUMMARY				INPUT RETRIES	
	RECS.	INPUT	SIZE	PERM	ZERO B	SHORT	UNDEF.	#RECS.	TOTAL#
1812	1	2	178	0	0	0	0	0	0

EOJ DUMP STOPPED AFTER FILE 1812 # OF PERMANENT READ ERRORS 0

START TIME 03/26/82 14:03:19

STOP TIME 03/26/82 14:08:46

\$\$

\$EXEC TPDUP BS
 \$EXEC TPDUMP BS

HELIOS - B (76-003A-01B) REGULAR OCTAL DUMP OF LR1001

AS 004835
1/15/76 - 4/30/76

FILE 1	RECORD 2	285 BYTES							
(0)	000044003260	0017177717415	672346316364	000000000000	000014000040	000102000000	000362410562	120316242245	
(48)	000000000000	000000055400	000000000000	000000000000	000000767230	513317725373	614000000000	010017641546	
(96)	177767443220	000000000277	041134745725	310032600000	000000000000	000000000000	000375463146	327725075314	
(144)	200433314637	777300000000	027767730000	000000000000	000000000000	000016677233	061031000000	007374742325	
(192)	715740110640	000000000000	000000000000	000000175622	010420065660	022300031000	100000360016	440010375313	
(240)	007774067600	006500021000	116000160017	240010375124	007110066400	002500011000	174000150017	240010	

REGULAR OCTAL DUMP OF LR1001

FILE 1207	RECORD 1	1485 BYTES							
(0)	000044021320	017117777537	435635553420	000000000000	000324000040	000102000000	000362410562	120316242245	
(48)	000000000000	000000055400	000000000000	000000000000	000003001100	503020067114	304000000000	007742542270	
(96)	177256030540	000000000077	124413222005	352415600000	000000000000	000000000000	000400124365	667665605146	
(144)	577455727317	777600000000	031767110000	000000000000	000000000000	000017441136	377500733000	007370102577	
(192)	636721565740	000000000000	000000000000	000000174132	773244033100	005500015000	074000120015	700010174114	
(240)	773554032640	003000010000	054000060015	700010174053	773674032540	003200012400	066000100016	000010174140	
(288)	773654030500	005500044400	102000200015	440010174223	773440027720	003400020400	040000100015	240010174331	
(336)	773404030300	005200017400	106000130014	740010173753	774060021420	027700151000	272000650015	600010173371	
(384)	775020010440	002300037400	114000160016	600010173416	774710013760	003400042400	126000170016	600010173416	
(432)	775100013600	002300020000	114000110016	540010173454	774760015640	002200025000	126000130016	500010173451	
(480)	774620017120	003500017000	136000130016	540010173446	774114015200	002500013000	054000070016	600010173452	
(528)	774270015360	002400020000	046000070016	540010173464	774510015400	002400025000	050000110016	440010173503	
(576)	774570017340	001600021000	052000100016	440010173641	774514020560	005600021000	102000140016	040010173741	
(624)	774220022560	003400017400	140000130015	700010173607	775300016520	004300037400	220000220016	000010173630	
(672)	775320020640	003100027000	132000140016	000010173664	775520017420	004200031400	116000150015	600010173773	
(720)	774614021160	010500023400	206000220015	440010174073	774310021740	003600027000	060000130015	200010174153	
(768)	774210025000	003200034000	062000140015	140010174157	774104032020	004600046000	072000200015	440010174064	
(816)	773760036220	003100010400	076000100016	200010174146	773644036320	004700024000	116000140016	000010174164	
(864)	773630036240	004100031400	116000150015	740010174035	772620022600	014300307000	314001130015	640010173672	
(912)	772764003500	004100013400	060000100015	700010173516	772674004460	003100031400	054000130016	440010173464	
(960)	772730005020	002000014400	064000070016	540010173464	772764006720	002300017000	114000110016	540010173451	
(1008)	772720007320	002400034400	110000140016	640010173460	772624010200	004000064000	144000250016	640010173456	
(1056)	773004010340	004100051000	174000230016	600010173635	772404006460	012000026400	134000220016	140010173657	
(1104)	772620010740	005700041000	104000200016	040010173662	773164015500	007000034000	126000200016	040010173712	
(1152)	773024017760	011700013000	122000200016	040010174111	773260022500	006000020000	100000130015	340010174065	
(1200)	773274021540	004400022400	064000120015	400010173620	773034014220	016400046000	114000310016	200010173465	
(1248)	772750012140	003000014400	072000100016	600010173460	773064010700	003300032000	076000140016	600010173437	
(1296)	773230010760	003300045400	120000170016	640010173436	773650006600	003100041000	112000160016	540010173453	
(1344)	773540010700	002400023000	050000110016	500010173467	773470011520	002100013000	054000060016	500010173461	
(1392)	773420012140	002500012400	070000070016	540010173473	773170011260	002200016400	052000070016	540010173465	
(1440)	773000011700	001700012000	070000070016	600010173473	773554010240	003200013000	106000110016	440010	

DUMP OF TAPE GAIL-11

INPUT TAPE GAIL-11 ON MT4
DATA INPUT 09 NF 1207 SR 1 2 1 SR 1207 LAST 1

HELIOS-B

D-47664

01/15/76 - 04/30/76

C-22211

FILE	1	RECORD	215	LENGTH	285	BYTES														
(0)	000044003260	001717717415	673346316364	000000000000	000014000040	000102000000	000362410562	120316242245												
(48)	000000000000	000000055400	000000000000	000000000000	000000767230	513317725373	614000000000	010017641546												
(96)	177767443220	000000000277	041134745725	000000000000	000000000000	000000000000	000375463146	327725075314												
(144)	204433314637	777300000000	027767730000	000000000000	000000000000	000016677233	061031000000	007374742325												
(192)	715740110640	000000000000	000000000000	000000175622	010420065660	022300031000	100000360016	440010375313												
(240)	007774067600	006500021000	116000160017	240010375124	007110066400	002500011060	174000150017	240010												

FILE	INPUT	DATA RECORDS	MAX.	READ ERROR SUMMARY	INPUT RETRIES
	RECS.	INPUT	SIZE	PERM ZERO B SHORT UNDEF.	#RECS. TOTAL#
1	16	16	1312	0 0 0 0	0 0
FILE 1207	RECORD	1	LENGTH	1485	BYTES
(0)	000044021320	017117777537	435635553420	000000000000	000324000040
(48)	000000000000	000000055400	000000000000	000000000000	000003001100
(96)	177256030540	000000000077	134413222005	352415600000	000000000000
(144)	577455727317	777600000000	031767110000	000000000000	000017441136
(192)	636721565740	000000000000	000000000000	000000174132	773244033100
(240)	773554032640	003000010000	054000060015	700010174053	773674032540
(288)	773654030500	005500044400	102000200015	440010174223	773440027720
(336)	773404030300	005200017400	106000130014	740010173753	774060021420
(384)	775020010440	002300037400	114000160016	600010173416	774710013760
(432)	775100013600	002300020000	114000110016	540010173454	774760015640
(480)	774620017120	003500017000	136000130016	540010173446	774114015200
(528)	774270015360	002400020000	046000070016	540010173464	774510015400
(576)	774570017340	001600021000	052000100016	440010173641	774514020560
(624)	774220022560	003400017400	140000130015	700010173607	775300016520
(672)	775320020640	003100027000	132000140016	000010173664	775520017420
(720)	774614021160	010500023400	206000220015	440010174073	774310021740
(768)	774210025000	003200034000	062000140015	140010174157	774104032020
(816)	773760036220	003100010400	076000100016	200010174146	773644036320
(864)	773630036240	004100031400	116000015015	740010174035	772620022600
(912)	772764003500	004100013400	060000100015	700010173516	772674004460
(960)	772730005020	002000014400	064000070016	540010173464	772764006720
(1008)	772720007320	002400034400	110000140016	640010173460	772624010200
(1056)	773004010340	004100051000	174000230016	600010173635	772404006460
(1104)	772620010740	005700041000	104000200016	040010173662	773164015500
(1152)	773024017760	011700013000	122000200016	040010174111	773260022500
(1200)	773274021540	004400022400	064000120015	400010173620	773034014220
(1248)	772750012140	003000014400	072000100016	600010173460	773064010700
(1296)	773230013760	003300045400	120000170016	640010173436	773650006600
(1344)	773540010700	002400023000	050000110016	500010173467	773470011520
(1392)	773420012140	002500012400	070000070016	540010173473	773170011260
(1440)	773000011700	001700012000	070000070016	600010173473	773554010240

FILE	INPUT	DATA RECORDS	MAX.	READ ERROR SUMMARY	INPUT RETRIES
	RECS.	INPUT	SIZE	PERM ZERO B SHORT UNDEF.	#RECS. TOTAL#
1207	1	2	1114	0 0 0 0	0 0

EOJ DUMP STOPPED AFTER FILE 1207 # OF PERMANENT READ ERRORS 0

START TIME 03/26/82 14:10:49 STOP TIME 03/26/82 14:17:21

D-47665
03/08/75-08/16/75
C-22216

HELIOS A

[illegible]

*** **

EO J DUMP STOPPED AFTER FILE 911 # OF PERMANENT READ ERRORS 0

START TIME 10/08/82 09:51:19

STOP TIME 10/08/82 09:55:53

DUMP OF TAPE GAIL12

INPUT TAPE GAIL12 ON MT1
DATA INPUT 09 NF 911 SR 1 2 1 SR 911 LAST 1

HELICO-A

D-47665

03/08/75 - 08/16/75

FILE 1 RECORD 1 LENGTH 357BYTES
(0) 000044004140 064717767674 641553304334 600000000000 000030000100 000101000000 000362410562 120316242245
(48) 000000000000 000000055000 000000000000 000000000000 000001001072 605520106633 550000000000 010030204057
(96) 177310263300 000000000277 177422631770 240670000000 000000000000 001400675341 327741217312
(144) 177176773357 777100000000 035770120000 000000000000 000000000000 000017366250 144650100000 007370163226
(192) 743736500060 000000000000 000000000000 000000173541 003307743369 017500162000 332001060017 140006173370
(240) 003157744520 005000046400 310000410017 540006173365 003273745640 006600014400 242000300017 500006173360
(288) 002413750040 005100030000 210000270017 300006173402 003003750360 004700021000 172000240017 240006173410
(336) 003443750720 005300023400 074000200017 240006

C-22216

FILE INPUT DATA RECORDS MAX. READ ERROR SUMMARY INPUT RETRIES
RECS. INPUT SIZE PERM ZERO B SHORT UNDEF. #RECS. TOTAL#
1 15 15 1312 0 2 0 0 2 2

FILE 911 RECORD 1 LENGTH 1749BYTES
(0) 000044024400 112117732361 152745566000 000000000000 000400002000 000300040000 000362410562 120316242245
(48) 000000000000 000000055000 000000000000 000000000000 000001001101 073020051613 046364140570 450022054636
(96) 177543034003 777032313677 121132712005 647431200000 000000000000 001377374143 127774103031
(144) 200510275540 002400005400 057750270000 000000000000 000000000000 000017450067 062447750000 007370147121
(192) 122533315440 000000000000 000000000000 000000001055 000434040320 000000000000 000000000007 300002001316
(240) 000554034300 000000000000 000000000007 200002001436 000554031720 000000000000 000000000007 140002001436
(288) 000554031720 000000000000 000000000007 140002001450 000554033120 000000000000 000000000007 340002001436
(336) 000554031720 000000000000 000000000007 140002001507 000624030520 000000000000 000000000007 200002001557
(384) 000750027340 000000000000 000000001007 200002001641 000630026140 000000000000 000000010007 240002001615
(432) 001020025700 000000000000 000000000007 140002001642 001330024500 000000000000 000000010007 140002001572
(480) 001260023300 000000000000 000000010006 700002001572 001260023300 000000000000 000000010006 700002001667
(528) 001640017500 000000000000 0000000010006 700002001667 001640020700 000000000000 000000000007 000002001667
(576) 001640020700 000000000000 000000000007 000002001616 001570022100 000000000000 000000000006 700002001616
(624) 001570023300 000000000000 000000010007 000002001560 001450024500 000000000000 000000010007 000002001545
(672) 001330026520 001200017000 062000100007 140002001533 001140027340 000000000000 000000010007 140002001507
(720) 001400027060 000000000000 000000010007 040002001557 001520025700 000000000000 000000000007 100002001557
(768) 000750027340 000000000000 000000010007 200002001533 001710027100 000000000000 000000000007 200002001521
(816) 002150025700 000000000000 000000000007 100002001521 002150025700 000000000000 000000000007 100002001557
(864) 002270025700 000000000000 000000000007 200002001521 002150025700 000000000000 000000000007 100002001451
(912) 002030027060 000000000000 000000010007 040002001451 002030025660 000000000000 000000000006 700002001521
(960) 002150025700 000000000000 000000000007 100002001521 002150025700 000000000000 000000000007 100002001521
(1008) 002150027100 000000000000 000000000007 200002001451 002074030260 000000000000 000000000007 200002001534
(1056) 001710023300 000000000000 000000000006 640002001725 001760016320 000000000000 000000010006 740002001701
(1104) 001400016300 000000000000 000000000006 600002001667 001640017500 000000000000 000000010006 700002001701
(1152) 001450017500 000000000000 000000000006 700002001701 001450020700 000000000000 000000010007 000002001667
(1200) 001640017500 000000000000 000000010006 700002001701 001450017500 000000000000 000000000006 700002001667
(1248) 001640017500 000000000000 000000010006 700002001713 002150016320 000000000000 000000000006 740002001667
(1296) 002410016320 000000000000 000000010006 700002001667 002410016320 000000000000 000000010006 700002001667
(1344) 002410016320 000000000000 000000010006 700002001713 002220017520 000000000000 000000000007 040002001713
(1392) 002220017520 000000000000 000000000007 040002001713 002220017520 000000000000 000000000007 040002001713
(1440) 002150016320 000000000000 000000000006 740002001713 002220017520 000000000000 000000000007 040002001667
(1488) 002410017520 000000000000 000000000007 000002001751 002270017520 000000000000 000000010007 200002001713
(1536) 002220017520 000000000000 000000000007 040002001725 001760017520 000000000000 000000010007 040002001775
(1584) 002100017520 000000000000 000000010007 240002001751 002270017520 000000000000 000000010007 200002001751
(1632) 001520016320 000000000000 000000000007 000002001751 001520017520 000000000000 000000000007 100002001751
(1680) 001520016320 000000000000 000000000007 000002001751 001520017520 000000000000 000000000007 100002001751
(1728) 001520017520 000000000000 000000000007 100002

FILE INPUT DATA RECORDS MAX. READ ERROR SUMMARY INPUT RETRIES
RECS. INPUT SIZE PERM ZERO B SHORT UNDEF. #RECS. TOTAL#
911 1 2 1312 0 0 0 0 0 0

DUMP OF TAPE GAIL-6

INPUT TAPE GAIL-6 ON MT1
DATA INPUT 09 NF 957 SR 1 2 1 SR 957 LAST 1

HELICUS-A

D-47666

08/16/75-03/11/76

C-22217

FILE	1	RECORD	2	LENGTH	1749BYTES
(0)	000044024400	1121	17732361	152745566000	000000000000
(48)	000000000000	000000055000	000000000000	000000000000	000000000000
(96)	177543034003	777032313677	121132712005	647431200000	000000000000
(144)	200510275540	002400005400	057750270000	000000000000	000000000000
(192)	122533315440	000000000000	000000000000	000000001055	000434040320
(240)	000554034300	000000000000	000000000007	200002001436	000554031720
(288)	000554031720	000000000000	000000000007	140002001450	000554033120
(336)	000554031720	000000000000	000000000007	140002001507	000624030520
(384)	000750027340	000000000000	000000010007	200002001641	000630026140
(432)	001020025700	000000000000	000000000007	140002001642	001330024500
(480)	001260023300	000000000000	000000010006	700002001572	001260023300
(528)	001640017500	000000000000	000000010006	700002001667	001640020700
(576)	001640020700	000000000000	000000000007	000002001616	001570022100
(624)	001570023300	000000000000	000000010007	000002001560	001450024500
(672)	001330026520	001200017000	062000100007	140002001533	001140027340
(720)	001400027060	000000000000	000000010007	040002001557	001520025700
(768)	000750027340	000000000000	000000010007	200002001533	001710027100
(816)	002150025700	000000000000	000000000007	100002001521	002150025700
(864)	002270025700	000000000000	000000000007	200002001521	002150025700
(912)	002030027060	000000000000	000000010007	040002001451	002030025660
(960)	002150025700	000000000000	000000000007	100002001521	002150025700
(1008)	002150027100	000000000000	000000000007	200002001451	002074030260
(1056)	001710023300	000000000000	000000000006	640002001725	001760016320
(1104)	001400016300	000000000000	000000000006	600002001667	001640017500
(1152)	001450017500	000000000000	000000000006	700002001701	001450020700
(1200)	001640017500	000000000000	000000010006	700002001701	001450017500
(1248)	001640017500	000000000000	000000010006	700002001713	002150016320
(1296)	002410016320	000000000000	000000010006	700002001667	002410016320
(1344)	002410016320	000000000000	000000010006	700002001713	002220017520
(1392)	002220017520	000000000000	000000000007	040002001713	002220017520
(1440)	002150016320	000000000000	000000000006	740002001713	002220017520
(1488)	002410017520	000000000000	000000000007	000002001751	002270017520
(1536)	002220017520	000000000000	000000000007	040002001725	001760017520
(1584)	002100017520	000000000000	000000010007	240002001751	002270017520
(1632)	001520016320	000000000000	000000000007	000002001751	001520017520
(1680)	001520016320	000000000000	000000000007	000002001751	001520017520
(1728)	001520017520	000000000000	000000000007	100002	

FILE	INPUT RECS.	DATA INPUT	RECORDS INPUT	MAX. SIZE	READ PERM	ERROR ZERO	SUMMARY SHORT	UNDEF.	INPUT RETRIES #RECS.	TOTAL#
1	16	16	801	1312	0	0	0	0	0	0

FILE	957	RECORD	13	LENGTH	1725BYTES
(0)	000044024160	1441	17760547	160640123534	500000000000
(48)	000000000000	000000055000	000000000000	000000000000	000000000000
(96)	177350120740	000000000277	201077555761	243411600000	000000000000
(144)	577063503720	003400005000	073761740000	000000000000	000000000000
(192)	301330133020	000000000000	000000000000	000000174744	005000022360
(240)	004674021040	002100012000	104000100013	000010174775	004750020540
(288)	004670017520	002400036000	074000140012	540010174777	005024022220
(336)	005000027140	003100063000	072000240013	340010175001	004560020340
(384)	005034024560	002700053400	070000210013	000010175034	005250024720
(432)	005560025420	004200031000	140000160013	340010174710	005114027440
(480)	004734024320	003400071400	102000260013	040010175047	004530016240
(528)	004400017760	002200022400	056000100012	500010175051	004644021200
(576)	005030030620	003000052000	104000210013	040010175165	005014027500
(624)	004464026300	003000101000	160000310012	540010175155	004160030300
(672)	004164026000	002300026000	106000120012	560010175111	004400023100

DUMP OF TAPE GAIL

14

HELIOS-A

D-47667

03/11/76-04/30/76

C-22218

INPUT TAPE GAIL ON MTI
DATA INPUT 09 NF 370 SR 1 2 1 SR 370 LAST 1

FILE	1	RECORD	801	LENGTH	1725BYTES
(0)	000044024160	144117760547	160640123534	500000000000	000374000040
(48)	000000000000	000000055000	000000000000	000000000000	000001001077
(96)	177350120740	000000000277	201077555761	243411600000	000000000000
(144)	577063503720	003400005000	073761740000	000000000000	000000000000
(192)	301330133020	000000000000	000000000000	000000174744	005000022360
(240)	004674021040	002100012000	104000100013	000010174775	004750020540
(288)	004670017520	002400036000	074000140012	540010174777	005024022220
(336)	005000027140	003100063000	072000240013	340010175001	004560020340
(384)	005034024560	002700053400	070000210013	000010175034	005250024720
(432)	005560025420	004200031000	140000160013	340010174710	005114027440
(480)	004734024320	003400071400	102000260013	040010175047	004530016240
(528)	004400017760	002200022400	056000100012	500010175051	004644021200
(576)	005030030620	003000052000	104000210013	040010175165	005014027500
(624)	004464026300	003000101000	160000310012	540010175155	004160030300
(672)	004164026000	002300026000	106000120012	500010175111	004400023100
(720)	004354024400	002200014000	052000070012	540010175072	004070023240
(768)	003750022620	002200014400	062000070012	440010175063	004124020560
(816)	004340022060	002700030400	104000130012	440010175037	004350022640
(864)	004324022140	002600024000	042000110012	440010175066	004440020100
(912)	004160020520	001700017400	056000070012	500010175040	004074016600
(960)	003660015660	001700022000	064000100012	300010174760	003364012120
(1008)	003710012040	002700015400	052000070012	440010174650	003760011740
(1056)	004104012260	002000011400	040000050012	600010174700	004240011240
(1104)	004424011300	002100012000	076000070012	640010174701	004444010120
(1152)	004240011060	001700011400	044000050012	640010174717	004340011120
(1200)	004304010300	003200020000	046000100012	340010174746	004224010360
(1248)	004064012200	002100017400	056000070012	440010174762	004430013120
(1296)	004424010620	002600022400	064000110012	400010174733	004350011600
(1344)	004254011420	002000013000	042000060012	500010174763	004220012600
(1392)	003774013420	002100012000	062000060012	200010175020	004034013260
(1440)	003750013000	002700013000	056000100012	200010175044	004054011720
(1488)	004110012040	001600013000	062000060012	100010175060	004030012300
(1536)	004000012040	002600013400	074000100012	100010175010	004254012220
(1584)	004130011600	002100010000	044000050012	300010174765	003700007560
(1632)	003770006700	002400013000	052000060012	440010174706	004140007760
(1680)	004074007700	002700011400	054000070012	500010174647	004004007220

FILE	INPUT	DATA RECORDS	MAX.	READ ERROR SUMMARY	INPUT RETRIES
	RECS.	INPUT	SIZE	PERM ZERO B SHORT UNDEF.	#RECS. TOTAL#
1	12	12	1312	0 0 0 0	0 0

FILE	370	RECORD	851	LENGTH	1557BYTES
(0)	000044022200	152317775260	160132702300	000000400000	000340020000
(48)	000000000000	000000055000	000000000000	000000000000	000001001071
(96)	177516563760	000000000077	124516172005	442773200000	000000000000
(144)	577063503720	003600004400	077761740000	000000000000	000000000000
(192)	174313220700	000000000000	000000000000	000000176351	002537775720
(240)	002537775720	000000000000	000000000005	300002176351	002537775720
(288)	002277775720	000000000000	000000000005	140002176460	002727774540
(336)	002277774520	000000000000	000000000005	140002176422	002607774540
(384)	002417774520	000000000000	000000000005	040002176460	002727774540
(432)	002727775740	000000000000	000000000005	040002176471	002727775740
(480)	002727774540	000000000000	000000000005	100002176446	003167774300
(528)	003237775520	000000000000	000000000005	040002176504	003237774320
(576)	002733772140	000000000000	000000000005	140002176411	002613772120
(624)	002353772120	000000000000	000000000005	100002176365	002303772120
(672)	002303772120	000000000000	000000000005	300002176435	002353770720
(720)	002733770740	000000000000	000000000005	200002176474	002473767540