

#252

APOLLO 12

MAGNETIC COMPONENTS

69-099C-04B

35 tapes

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## **1. INTRODUCTION:**

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 This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system.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

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

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

## 2. ERRATA/CHANGE LOG:

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

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

| Version | Date | Person | Page | Description of Change |
|---------|------|--------|------|-----------------------|
| 01      |      |        |      |                       |
| 02      |      |        |      |                       |

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

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

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

4. CATALOG MATERIALS:

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

- b. Core Catalog Materials

APOLLO 12 LM/ALSEP

B MAGNITUDE, COMPONENTS, MAG TAPE

69-099C-04B

THIS DATA SET HAS BEEN RESTORED. ORIGINALLY IT CONTAINED 35 7-TRACK, 556 BPI TAPES WRITTEN IN BINARY. THERE ARE THREE RESTORED TAPES. THE DR TAPES ARE 3480 CARTRIDGES AND THE DS TAPES ARE 9-TRACK, 6250 BPI. THE ORIGINAL TAPES WERE CREATED ON AN IBM 7094 COMPUTER AND THE RESTORED TAPES WERE CREATED ON AN IBM 9021 COMPUTER. THE DR AND DS NUMBERS ALONG WITH THE CORRESPONDING D NUMBERS AND TIME SPANS ARE AS FOLLOWS:

| DR#      | DS#      | D#      | FILES | TIME SPAN               |
|----------|----------|---------|-------|-------------------------|
| DR005172 | DS005172 | D013067 | 1     | 11/19/69 - 11/22/69     |
|          |          | D013068 | 2     | 11/22/69 - 11/25/69     |
|          |          | D013069 | 3     | 11/25/69 - 11/28/69     |
|          |          | D013070 | 4     | 11/28/69 - 12/01/69     |
|          |          | D013071 | 5     | 12/01/69 - 12/04/69     |
|          |          | D013072 | 6     | 12/04/69 - 12/07/69     |
|          |          | D013073 | 7     | 12/07/69 - 12/10/69     |
|          |          | D013074 | 8     | 12/10/69 - 12/11/69     |
|          |          | D013075 | 9     | 12/18/69 - 12/19/69     |
|          |          | D013076 | 10    | 12/19/69 - 12/22/69     |
|          |          | D013077 | 11    | 12/22/69 - 12/25/69     |
|          |          | D013078 | 12    | 12/25/69 - 12/28/69 (a) |
| DR005173 | DS005173 | D013079 | 1     | 12/28/69 - 12/31/69 (b) |
|          |          | D013080 | 2     | 12/31/69 - 12/31/69     |
|          |          | D013081 | 3     | 01/01/70 - 01/04/70     |
|          |          | D013082 | 4     | 01/17/70 - 01/18/70 (c) |
|          |          | D013083 | 5     | 01/18/70 - 01/21/70     |
|          |          | D013084 | 6     | 01/21/70 - 01/24/70     |
|          |          | D013085 | 7     | 01/24/70 - 01/27/70     |
|          |          | D013086 | 8     | 01/27/70 - 01/30/70 (d) |
|          |          | D013087 | 9     | 01/30/70 - 02/02/70     |
|          |          | D013088 | 10    | 02/02/70 - 02/03/70 (e) |
|          |          | D013089 | 11    | 02/15/70 - 02/17/70     |
|          |          | D013090 | 12    | 02/17/70 - 02/20/70     |

| DR#      | DS#      | D#      | FILES | TIME SPAN               |
|----------|----------|---------|-------|-------------------------|
| DR005174 | DS005174 | D013091 | 1     | 02/20/70 - 02/23/70     |
|          |          | D013092 | 2     | 02/23/70 - 02/26/70     |
|          |          | D013093 | 3     | 02/26/70 - 03/01/70     |
|          |          | D013094 | 4     | 03/01/70 - 03/04/70     |
|          |          | D013095 | 5     | 03/04/70 - 03/05/70     |
|          |          | D013096 | 6     | 03/17/70 - 03/19/70     |
|          |          | D013097 | 7     | 03/19/70 - 03/22/70 (f) |
|          |          | D013098 | 8     | 03/22/70 - 03/25/70     |
|          |          | D013099 | 9     | 03/25/70 - 03/28/70     |
|          |          | D013100 | 10    | 03/28/70 - 03/31/70     |
|          |          | D013101 | 11    | 03/31/70 - 04/03/70     |

- (a) D013078 - READ ERROR OCCURRED ON RECORD 1262, FILE 1
- (b) D013079 - READ ERROR OCCURRED ON RECORD 2839, FILE 1
- (c) D013082 - READ ERROR OCCURRED ON RECORD 791, FILE 1
- (d) D013086 - READ ERRORS OCCURRED ON RECORDS 770 & 771, FILE 1
- (e) D013088 - READ ERRORS OCCURRED ON RECORDS 551 & 553, FILE 1
- (f) D013097 - READ ERRORS OCCURRED ON RECORDS 211 & 231, FILE 1

REQ. AGENT  
ROP

RASH NO.  
RB4965

ACQ. AGENT  
JHK

APOLLO 12

MAGNITUDE COMPONENTS

69-099C-04B

This data set consists of 35, 556 BPI, Binary, 7 tracks tapes, created on a IBM 7094 operating system. Each tape contains 1 file of data. The time spans are as follows:

| <u>D#</u> | <u>C#</u> | <u>TIME SPAN</u>    |
|-----------|-----------|---------------------|
| D-13067   | C-09932   | 11/19/69 - 11/22/69 |
| D-13068   | C-09933   | 11/22/69 - 11/25/69 |
| D-13069   | C-09934   | 11/25/69 - 11/28/69 |
| D-13070   | C-09935   | 11/28/69 - 12/01/69 |
| D-13071   | C-09936   | 12/01/69 - 12/04/69 |
| D-13072   | C-09937   | 12/04/69 - 12/07/69 |
| D-13073   | C-09938   | 12/07/69 - 12/10/69 |
| D-13074   | C-09939   | 12/10/69 - 12/11/69 |
| D-13075   | C-09940   | 12/18/69 - 12/19/69 |
| D-13076   | C-09941   | 12/19/69 - 12/22/69 |
| D-13077   | C-09942   | 12/22/69 - 12/25/69 |
| D-13078   | C-09943   | 12/25/69 - 12/28/69 |
| D-13079   | C-09944   | 12/28/69 - 12/31/69 |
| D-13080   | C-09945   | 12/31/69 - 12/31/69 |
| D-13081   | C-09946   | 01/01/70 - 01/04/70 |
| D-13082   | C-09947   | 01/17/70 - 01/18/70 |
| D-13083   | C-09948   | 01/18/70 - 01/21/70 |
| D-13084   | C-09949   | 01/21/70 - 01/24/70 |
| D-13085   | C-09950   | 01/24/70 - 01/27/70 |

| <u>D#</u> | <u>C#</u> | <u>TIME SPAN</u>    |
|-----------|-----------|---------------------|
| D-13086   | C-09951   | 01/27/70 - 01/30/70 |
| D-13087   | C-09952   | 01/30/70 - 02/02/70 |
| D-13088   | C-09953   | 02/02/70 - 02/03/70 |
| D-13089   | C-09954   | 02/15/70 - 02/17/70 |
| D-13090   | C-09955   | 02/17/70 - 02/20/70 |
| D-13091   | C-09956   | 02/20/70 - 02/23/70 |
| D-13092   | C-09957   | 02/23/70 - 02/26/70 |
| D-13093   | C-09958   | 02/26/70 - 03/01/70 |
| D-13094   | C-09959   | 03/01/70 - 03/04/70 |
| D-13095   | C-09960   | 03/04/70 - 03/05/70 |
| D-13096   | C-09961   | 03/17/70 - 03/19/70 |
| D-13097   | C-09962   | 03/19/70 - 03/22/70 |
| D-13098   | C-09963   | 03/22/70 - 03/25/70 |
| D-13099   | C-09964   | 03/25/70 - 03/28/70 |
| D-13100   | C-09965   | 03/28/70 - 03/31/70 |
| D-13101   | C-09966   | 03/31/70 - 04/03/70 |

September 28, 1973

To: Dr. King

From: ADP Services

Subject: Apollo 12 (69-099C-04B) data tapes.

The following time spans did not match the time spans provided by the experimenter:

| <u>D-Tape</u> | <u>TIME SPAN ON TAPE</u> | <u>TIME PROVIDED BY THE EXPERIMENTER</u> |
|---------------|--------------------------|------------------------------------------|
|               | DAY HR TO DAY HR YEAR    | DAY HR TO DAY HR                         |
| D-13067-      | 323:14 - 324:14 69       | 323:14 - 326:14                          |
| D-13068       | 326:14 - 327:14          | 326:14 - 329:14                          |
| D-13075-      | 350:21 - 353:14          | 352:21 - 353:14                          |
| D-13081       | 001:00 - 003:14 70       | 001:00 - 004:00                          |
| D-13082       | 015:09 - 018:14          | 017:09 - 018:14                          |
| D-13088       | 033:14 - 035:14          | 033:14 - 034:04                          |
| D-13089       | 045:22 - 048:14          | 046:22 - 048:14                          |
| D-13095       | 063:14 - 066:15          | 063:14 - 064:15                          |
| D-13096       | 075:13 - 078:14          | 076:13 - 078:14                          |
| D-13100       | 087:14 - 088:23          | 087:14 - 090:14                          |

The following is a list of the time spans that did match the experimenters:

| <u>D-Tape</u> | <u>TIME SPAN ON TAPE</u> |
|---------------|--------------------------|
|               | DAY HR TO DAY HR YEAR    |
| D-13069-      | 329:14 - 332:14 69       |
| D-13070       | 332:14 - 335:14          |
| D-13071       | 335:14 - 338:14          |
| D-13072       | 338:14 - 341:14          |
| D-13073       | 341:14 - 344:14          |
| D-13074       | 344:14 - 345:20          |
| D-13076       | 353:14 - 356:14          |

| <u>D-Tape</u> | <u>TIME SPAN ON TAPE</u> |
|---------------|--------------------------|
|               | DAY HR TO DAY HR YEAR    |
| D-13077       | 356:14 - 359:14          |
| D-13078       | 359:14 - 362:14          |
| D-13079       | 362:14 - 365:14          |
| D-13080       | 365:14 - 365:23          |
| D-13083       | 018:14 - 021:14 70       |
| D-13084       | 021:14 - 024:14          |
| D-13085       | 024:14 - 027:14          |
| D-13086       | 027:14 - 030:14          |
| D-13087       | 030:14 - 033:14          |
| D-13090       | 048:14 - 051:14          |
| D-13091       | 051:14 - 054:14          |
| D-13092       | 054:14 - 057:14          |
| D-13093       | 057:14 - 060:14          |
| D-13094       | 060:14 - 063:14          |
| D-13097       | 078:14 - 081:06          |
| D-13098       | 081:14 - 084:14          |
| D-13099       | 084:14 - 087:14          |
| D-13101       | 090:14 - 093:02          |

# APOLLO CORRECTION TAPE DESCRIPTION

## FORTRAN Binary Tape (36 bits per word)

### I. Introduction

The correction tape contains lunar magnetic field data in the ALSEP coordinate system. The tape was written by a FORTRAN IV program using a 'WRITE (N) LIST' statement.

The first word of each record contains time in milliseconds for the first vector (X,Y,Z).within a record. Vectors are at approximately 301.88 millisecond intervals. Each component has been rounded to the nearest .01 gamma, multiplied by 100 and stored into 18 bits.



The first bit (1) is 0 for positive field values and 1 for negative field values. For example, a value of -29.376 gamma will be stored as -2938. Two components are packed into each 36-bit word.

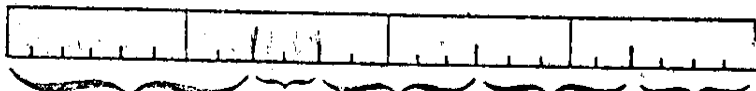
Two vectors require three 36-bit words.

| 1              | 2              | 18             | 19             | 36 |        |
|----------------|----------------|----------------|----------------|----|--------|
| S <sub>x</sub> | X <sub>1</sub> | S <sub>y</sub> | Y <sub>1</sub> |    | Word 1 |
| S <sub>z</sub> | Z <sub>1</sub> | S <sub>x</sub> | X <sub>2</sub> |    | Word 2 |
| S <sub>y</sub> | Y <sub>2</sub> | S <sub>z</sub> | Z <sub>2</sub> |    | Word 3 |

Time on the tape is continuous. Data gaps are filled by flagging missing vectors with 999.9. (X = 999.9, Y = 999.9, Z = 999.9)

## II. Output Tape Format

### Label Record



4 words

Experiment ID Year Start Time Stop Time Sequence Number

Example: MAGCTA12 932414 32714/0015

### Data Records

| Time-millisec | Word 1                            | Word 2                            | Word 3                            |
|---------------|-----------------------------------|-----------------------------------|-----------------------------------|
|               | X <sub>1</sub> Y <sub>1</sub>     | Z <sub>1</sub> X <sub>2</sub>     | Y <sub>2</sub> Z <sub>2</sub>     |
|               | Word 4                            | Word 5                            | Word 6                            |
|               | X <sub>3</sub> Y <sub>3</sub>     | Z <sub>3</sub> X <sub>4</sub>     | Y <sub>4</sub> Z <sub>4</sub>     |
|               | Word 7                            | Word 8                            | Word 9                            |
|               | X <sub>5</sub> Y <sub>5</sub>     | Z <sub>5</sub> X <sub>6</sub>     | Y <sub>6</sub> Z <sub>6</sub>     |
|               | Word 748                          | Word 749                          | Word 750                          |
|               | X <sub>499</sub> Y <sub>499</sub> | Z <sub>499</sub> X <sub>500</sub> | Y <sub>500</sub> Z <sub>500</sub> |

751 words

## III. Last Records

The last record of data is filled with ones (octal ones = 1111111111); last logical record filled with all ones followed by EOF.

Binary tape, 556 BPI; 7 track, standard IBM EOF.

6250 9

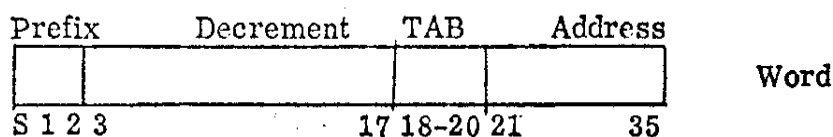
#### IV. DCS Blocked Records

The Apollo Correction Tapes were generated by an IBM 7040/7094 Direct Couple Operating System (DCS). To optimize the use of this operating system all tapes processed have a fixed physical record size of 460 words.

Physical-Record Control Words.

The first two words in standard DCS physical records are control words.

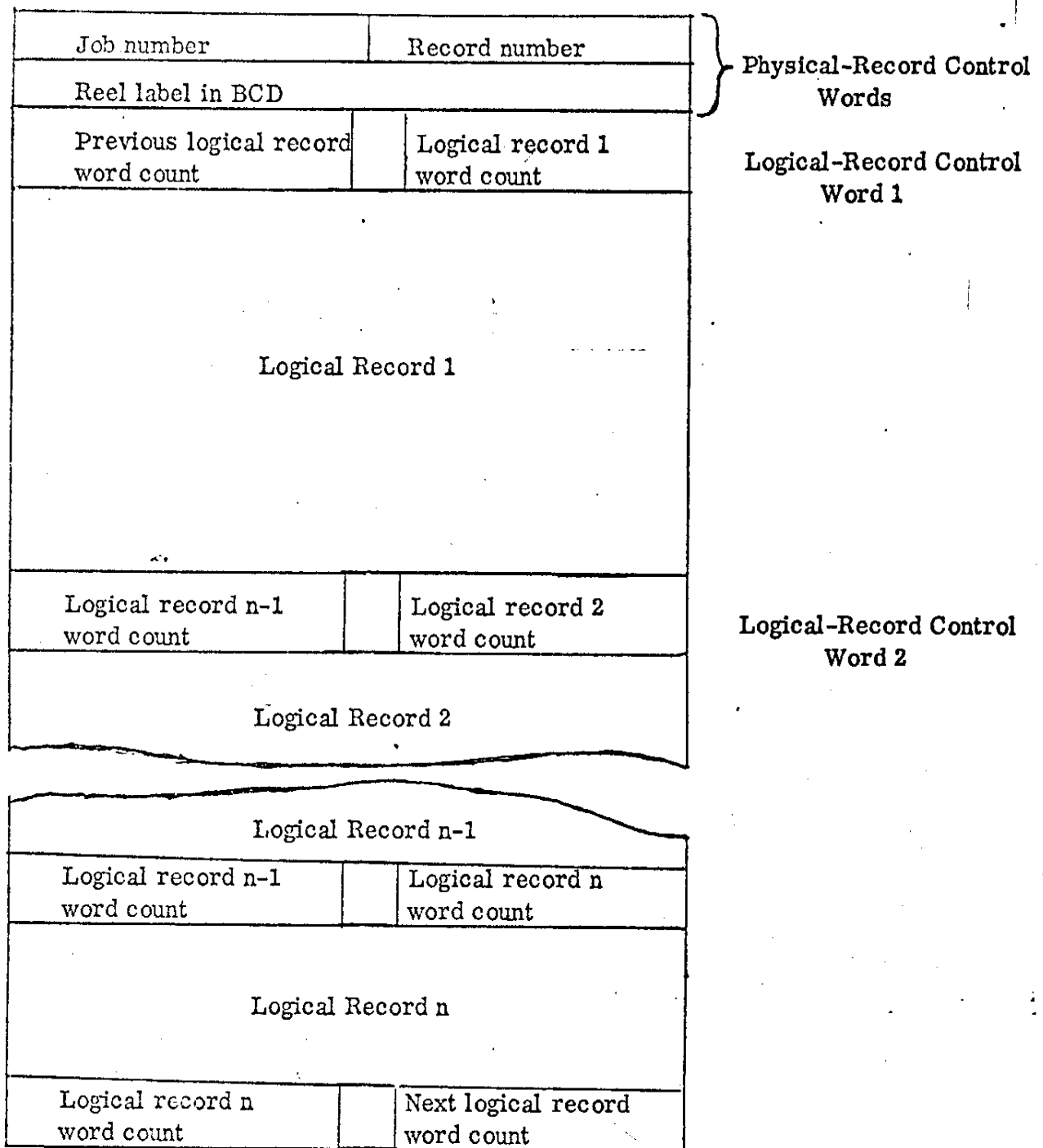
The first control word contains the number of the record within the current file. The second control word contains the real label in BCD form.



#### Logical-Record Control Words

Preceding the first word of each logical record is the logical-record control word. The decrement of this word contains the word count of the previous logical record, and its address contains the word count of the following logical record. The remaining bits of the word, prefix and tag, are used to indicate the following.

- s=0      The previous logical record is complete in this buffer.
- s=1      The previous logical record is incomplete in this buffer or ends in the last word of the previous buffer.
- 1=0      The previous logical record is a BCD record.
- 1=1      The previous logical record is a binary record.
- 18=0     The next logical record is complete in this buffer.
- 18=1     The next logical record is incomplete in this buffer or starts in the first word of the next buffer.
- 19=0     The next logical record is a BCD record.
- 19=1     The next logical record is a binary record.



Physical record size is 460 words.

# APOLLO CORRECTION TAPE DESCRIPTION

## DCS BLOCKED LAYOUT

|                                        |     |                              |                           |
|----------------------------------------|-----|------------------------------|---------------------------|
| DCS<br>Physical<br>Rec #1<br>460 Words | 1   | Record Number                | DCS Physical Control Word |
|                                        | 2   | Reel Label                   | DCS Physical Control Word |
|                                        | 3   | Control Word                 | DCS Logical               |
|                                        | 4   | Control Word                 | Fortran                   |
|                                        | 5   | } Apollo Label Record Data   |                           |
|                                        | 6   |                              |                           |
|                                        | 7   |                              |                           |
|                                        | 8   |                              |                           |
|                                        | 9   | Control Word                 | DCS Logical               |
|                                        | 10  | Control Word                 | Fortran                   |
|                                        | 11  | } Fortran Physical Record #1 |                           |
|                                        | 12  |                              |                           |
|                                        | :   |                              |                           |
|                                        | 264 |                              |                           |
|                                        | 265 |                              |                           |
|                                        | 266 | Control Word                 | DCS Logical               |
|                                        | 267 | Control Word                 | Fortran                   |
|                                        | 268 | } Fortran Physical Record #2 |                           |
|                                        | 269 |                              |                           |
|                                        | :   |                              |                           |
|                                        | 459 |                              |                           |
|                                        | 460 |                              |                           |

|                                        |     |                                              |                           |
|----------------------------------------|-----|----------------------------------------------|---------------------------|
| DCS<br>Physical<br>Rec #2<br>460 Words | 1   | Record Number                                | DCS Physical Control Word |
|                                        | 2   | Reel Label                                   | DCS Physical Control Word |
|                                        | 3   | } Continuation of Fortran Physical Record #2 |                           |
|                                        | 4   |                                              |                           |
|                                        | :   |                                              |                           |
|                                        | 63  |                                              |                           |
|                                        | 64  |                                              |                           |
|                                        | 65  | Control Word                                 | DCS Logical               |
|                                        | 66  | Control Word                                 | Fortran                   |
|                                        | 67  | } Fortran Physical Record #3                 |                           |
|                                        | 68  |                                              |                           |
|                                        | :   |                                              |                           |
|                                        | 366 |                                              |                           |
|                                        | 367 |                                              |                           |
|                                        | 368 | Control Word                                 | DCS Logical               |
|                                        | 369 | Control Word                                 | Fortran                   |
|                                        | 370 | } Fortran Physical Record #1                 |                           |
|                                        | 371 |                                              |                           |
|                                        | :   |                                              |                           |
|                                        | 459 |                                              |                           |
|                                        | 460 |                                              |                           |

Apollo  
Logical Rec #1  
751 Data Words

(does not include  
any control words)

Logical rec = 3 physical

1st 2 physical recs = 255 words

3rd phys rec = 241 words

|                                        |              |                            |                                            |
|----------------------------------------|--------------|----------------------------|--------------------------------------------|
| DCS<br>Physical<br>Rec #3<br>460 Words | 1            | Record Number              | DCS Physical Control Word                  |
|                                        | 2            | Reel Label                 | DCS Physical Control Word                  |
|                                        | 3            |                            |                                            |
|                                        | 4            | }                          | Continuation of Fortran Physical Record #1 |
|                                        | :            |                            |                                            |
|                                        | 105          |                            |                                            |
|                                        | 106          |                            |                                            |
|                                        | 107          | Control Word               | DCS Logical                                |
|                                        | 108          | Control Word               | Fortran                                    |
|                                        | 109          |                            |                                            |
|                                        | 110          | }                          | Fortran Physical Record #2                 |
|                                        | :            |                            |                                            |
|                                        | 362          |                            |                                            |
|                                        | 363          |                            |                                            |
|                                        | 364          | Control Word               | DCS Logical                                |
| 365                                    | Control Word | Fortran                    |                                            |
| 366                                    |              |                            |                                            |
| 367                                    | }            | Fortran Physical Record #3 |                                            |
| :                                      |              |                            |                                            |
| 459                                    |              |                            |                                            |
| 460                                    |              |                            |                                            |

Apollo  
Logical Rec #2  
751 Data Words

|                                        |              |                            |                                            |
|----------------------------------------|--------------|----------------------------|--------------------------------------------|
| DCS<br>Physical<br>Rec #4<br>460 Words | 1            | Record Number              | DCS Physical Control Word                  |
|                                        | 2            | Reel Label                 | DCS Physical Control Word                  |
|                                        | 3            |                            |                                            |
|                                        | 4            | }                          | Continuation of Fortran Physical Record #3 |
|                                        | :            |                            |                                            |
|                                        | 147          |                            |                                            |
|                                        | 148          |                            |                                            |
|                                        | 149          | Control Word               | DCS Logical                                |
|                                        | 150          | Control Word               | Fortran                                    |
|                                        | 151          |                            |                                            |
|                                        | 152          | }                          | Fortran Physical Record #1                 |
|                                        | :            |                            |                                            |
|                                        | 404          |                            |                                            |
|                                        | 405          |                            |                                            |
|                                        | 406          | Control Word               | DCS Logical                                |
| 407                                    | Control Word | Fortran                    |                                            |
| 408                                    |              |                            |                                            |
| 409                                    | }            | Fortran Physical Record #2 |                                            |
| :                                      |              |                            |                                            |
| 459                                    |              |                            |                                            |
| 460                                    |              |                            |                                            |

Apollo  
Logical Rec #3  
751 Data Words

|     |               |                                            |
|-----|---------------|--------------------------------------------|
| 1   | Record Number | DCS Physical Control Word                  |
| 2   | Reel Label    | DCS Physical Control Word                  |
| 3   |               |                                            |
| 4   | }             | Continuation of Fortran Physical Record #2 |
| :   |               |                                            |
| 203 |               |                                            |
| 204 |               |                                            |
| 205 | Control Word  | DCS Logical                                |
| .   | .             | .                                          |
| .   | .             | .                                          |
| .   | .             | .                                          |
| .   | .             | .                                          |



[illegible]

[illegible]

|      |              |              |              |              |              |              |              |
|------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 0001 | 011400005432 | 606002041003 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 |
| 0049 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 |
| 0097 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 |
| 0145 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 |
| 0193 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 |
| 0241 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 |
| 0289 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 |
| 0337 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 |
| 0385 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 |
| 0433 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 |
| 0481 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 |
| 0529 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 |
| 0577 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 |
| 0625 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 | 111111111111 |
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