#624

HEAO-1

SKYMAP DISPLAY FILES

REDUCED DATA BASE,.MH & .FB FILE

77-075A-04B

77-075A-04C

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 This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system.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

HEAO-1

Skymap Display Files

77-075A-04B ASGA-00007

This data set has been restored. There were originally 2 9-track, 1600 BPI tapes written in Binary. There is one restored tape. The DR tape is a 3480 cartridge and the DS tape is 9-track, 6250 BPI. The tapes were created on a 830 computer. The DR and DS numbers along with the corresponding D numbers and the time spans are as follows:

DR#	DS#	DD#	FILES	TIME SPAN
DR03702	DS03702	D59746	1-6	08/21/77 - 01/08/79
		D59747	7-10	08/21/77 - 01/08/79

HEAO-1

REDUCED DATA BASE, .MH & .FB FILE

77-075A-04C ASGA-00019

This data set has been restored. There were originally 4 9-track, 1600 BPI tapes written in Binary. There is one restored tape. The DR tape is a 3480 cartridge and the DS tape is 9-track, 6250 BPI. The tapes were created on a 830 computer. The DR and DS numbers along with the corresponding D numbers and the time spans are as follows:

DR#	DS#	DD#	FILES	TIME SPAN
DR03703	DS03703	D59748	1-6	08/21/77 - 02/22/78
		D59749	7-12	02/09/78 - 09/02/78
		D59750	13-16	08/14/78 - 01/08/79
		D59751	17-32	08/21/77 - 01/08/79

REQ. AGENT	RAND #	ACQ. AGENT
DAD	V0226	HKH

HEAO-1

SKYMAP DISPLAY FILES

77-075A-04B

THIS DATA SET CONSISTS OF 2 TAPES. THE TAPES ARE MULTIFILED, 9-TRACK, 1600 BPI, BINIARY, AND WERE CREATED ON A DATA GENERAL NOVA 830 COMPUTER. THE D#, C#, # OF FILES AND TIME SPANS FOLLOW BELOW:

D#	C#	# OF FILES	TIME SPAN
D-59746	C-23648	6	08/21/77 - 01/08/79
D-59747	C-23649	4	08/21/77 - 01/08/79

HEAO-1

REDUCED DATA BASE, .MH & .FB FILE

77-075A-04C

THIS DATA SET CONSISTS OF 4 TAPES. THE TAPES ARE MULTIFILED, 9TRACK, 1600 BPI, BINIARY, AND WERE CREATED ON A DATA GENERAL NOVA 830 COMPUTER. THE D#,C#, #OF FILES AND TIME SPANS FOLLOW BELOW:

D#	C#	# OF FILES	TIME SPAN
D-59748	C-23644	6	08/21/77 - 02/22/78
D-59749	C-23645	6	02/09/78 - 09/02/78
D-59750	C-23646	4 ~~6~~	08/14/78 - 01/08/79
D-59751	C-23647	16	08/21/77 - 01/08/79

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
CENTER FOR SPACE RESEARCH
CAMBRIDGE, MASSACHUSETTS 02139

October 28, 1983

Mr. Ralph Post
National Space Science Data Center
Code 601
Goddard Space Flight Center
Greenbelt, MD 20771

Dear Mr. Post:

In response to your request, I have enclosed a table which summarizes the time intervals during which the data found on the HEAO-1 (A4) tapes were taken. For tapes "E" and "F" the epoch code is part of the name of each disk file and can be used with the enclosed table to obtain the dates during which the data was taken.

Please feel free to call again if you have any more questions. My phone number is 617-253-7525.

Yours,

Al Levine

Alan M. Levine

AML:seb

Enclosure

Time intervals during which HEAO-1 (A4) data were taken. 77-075A-04C

Tape: Tape files	Disk file	Begin Time YR/MO/DA	Begin Time HR/MN/SC	End time YR/MO/DA	End time HR/MN/SC
A:0,1;D:0,1	M01501499-	77 8 21	23 4 29	77 11 17	6 21 33
A:2,3;D:2,3	M10002499-	77 10 15	22 33 13	78 1 20	21 0 3
A:4,5:D:4,5	M15002999-	77 11 17	6 21 33	78 2 22	3 49 43
B:0,1;D:6,7	M28003999-	78 2 9	5 59 0	78 4 27	13 39 52
B:2,3;D:8,9	M38005199-	78 4 14	16 29 49	78 7 13	16 19 46
B:4,5:D:10,11	M45005999-	78 5 24	9 40 36	78 9 2	16 44 55
C:0,1;D:12,13	M57006999-	78 8 14	18 34 30	78 11 6	0 22 0
C:2,3;D:14,15	M66007999-	78 10 11	10 59 38	79 1 8	14 14 5

For tapes E and F, the epoch code (1,2,3, or T) gives the time interval of each disk file as follows: 77-075A-04B

EPOCH CODE	Begin date YR/MO/DA	End date YR/MO/DA
1	77 8 21	78 3 1
2	78 2 3	78 9 2
3	78 8 7	79 1 8
T	77 8 21	79 1 8

B35203-000A

MIT Center for Space Research

Documentation of Data from the HEAO-1 A4 Experiment

Submitted to the

National Space Science Data Center

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MIT HEAO-1 (A4) NSSDC SUBMITTAL #1

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1.0 Introduction

This document supports the initial submittal of HEAO-1 (A4) High-Energy X-Ray Sky Survey Data to the National Space Science Data Center (NSSDC). This submittal also includes a set of magnetic tapes containing the reduced data which form the base for the construction of the high-energy X-ray sky survey catalog. The data were obtained from the Low Energy Detectors (LEDs) of the Hard X-Ray and Low-Energy Gamma-Ray Instrument (A4) which has been described by Matteson (1978). Further information on the detection system and its calibration is contained in Appendix A.

1.1 Binning Geometry

The data, which was all obtained when the satellite was spinning, consists of event counts and detector livetimes for four broad energy channels for each of the two LEDs, and have been accumulated as a function of satellite orientation. All satellite orientations, which may occur during spinning, can be described by two coordinates, the ecliptic longitude of the spacecraft spin axis (i.e., the z-axis), and the azimuth of the spacecraft y-axis (i.e., the direction of the centers of the fields of view of the LEDs). These coordinates are illustrated in Figure 1. The North Ecliptic Pole defines the origin of the azimuth coordinate, which increases according to the right-hand rule relative to the spacecraft z-axis.

All possible spinning satellite orientations are included in the azimuth range 0°-360° and the spin-axis longitude range of 0°-360°. If the satellite orientation is defined by (θ,ϕ) as in Figure 1 then (θ,ϕ) and $(\theta-180^\circ, 360^\circ-\phi)$ give identical collimator transmission patterns on the sky, assuming the collimator transmission is invariant to a 180° rotation around the spacecraft

y-axis. This was not always the case for detector D6, since there were occasions when it was partially occulted by the experiment blocking crystal (see Appendix A). Hence, if θ is in the range 180°-360°, as would normally occur from 21 September to 21 March, the coordinates are transformed, by the above formula, to give a value of θ in the range 0°-180°.

Any data obtained when the spin-axis was more than 0.5° from the ecliptic plane, or when the spacecraft was not spinning, were excluded from the data base.

Data was binned according to the above two-dimensional coordinate scheme. The azimuth coordinate was divided into 900 0.4° bins; the spin-axis ecliptic longitude coordinate was divided into 225 0.8° bins. Data was thereby accumulated in a total of 225 x 900 = 202,500 bins. The algorithms for determining bin numbers are:

$$\text{ILONG} = \text{INT}\ (\theta/0.8^\circ) \qquad 0 \leq \text{ILONG} \leq 224$$

$$\text{IAZ} = \text{INT}\ (\phi/0.4^\circ) \qquad 0 \leq \text{IAZ} \leq 899$$

where INT is the function which gives the integral part of the argument.

For this analysis, the ecliptic pole celestial coordinates were taken to be $\alpha(1950) = 270.00^\circ$, $\delta(1950) = 66.50^\circ$ and the x-axis of the ecliptic coordinate system was defined to be coincident with the celestial x-axis (α=0.0, δ=0.0).

2.0 Types of Data Files

Three basic sets of data files are included in this submission. They are:

1) .MH Files

2) .FB Files

3) Skymap display files (.F3 or .F6 files)

2.1 .MH Files

Data from a fixed range of sequence numbers (i.e., satellite orbits) is binned and accumulated in a .MH file. Each of these files is named MQaaaabbbb.MH where aaaa (or aaa) is the sequence number of the first orbit of data and bbbb is the sequence number of the last orbit of data included in the file. The files are organized as GRD files (see Section 3.5 and Appendix E). Each data record (type code 10051) contains the data accumulated in one satellite orientation bin and is uniquely specified by the integer pair ILONG,IAZ. These records are sorted so that the value of 900*ILONG+IAZ increases. Records do not exist for those orientation bins in which no data was accumulated. Each data record also contains, for each of the two LEDs, the raw number of events and the total livetime.

The .MH files cover overlapping sequence number ranges so that the data in each file is not necessarily independent of the data in all other .MH files. One can, however, obtain a complete, nonrepetitive set of data by selecting data according to the value of ILONG in each file. For example, data from sequence numbers 1500-2499 is in both the MQ10002499.MH and MQ15002999.MH files. If one uses data from bins with $0 \leq$ ILONG ≤ 100 from MQ10002499.MH and data from bins with $101 \leq$ ILONG ≤ 224 from MQ15002999.MH, then the data obtained will form an independent set.

The types of GRD records contained in these files are documented in Table 2.1. The order that the records appear in the file is the same order as is illustrated in Figure 2.1.

TABLE 2.1: GRD Record Types in MQ-.MH Files

Record Type	Type Code	Length	Word Number	Data Type*	Content
Header	0	8	1	1 I	File type (=10002)
			2		Not used
			3-5	3 I	Hours, minutes, seconds of file creation time
			6-8	3 I	Month, day, year of file creation date
Trailer	1	0			
Map Constants	10006	20	1	1 I	Number of azimuth bins (=900)
			2	1 I	Number of ecliptic longitude bins (=225)
			3-20	9 F	Rotation matrix to convert celestial coordinates to ecliptic coordinates.
Energy Channel Definitions	10015	142	1	1 I	Number of channel definitions (=10)
			2	1 I	Number of collimators (=2)
			3-16	4 I, S(10)	O,C1,C2,NDET where C1 and C2 are the beginning and end channel numbers of this broad pulse-height channel and NDET is the detector number (3 or 6). These 4 integers are followed by 10 words containing a string of up to 20 characters describing the defined channel.
			17-30	4 I, S(10)	Same as words 3-16
			"	"	"
			129-142	4 I, S(10)	"
Flag Words	10040	4	1-4		Not used
Data Record	10051	23	1	1 I	ILONG
			2	1 I	IAZ (records are ordered so that this index varies most rapidly)
			3		Not used
			4-23	10 F	Data: detector D3 - channel A counts B C D live time (seconds) detector D6 - channel A counts B C D live time (seconds)
Creation Time	10098	7	1	1 I	Sequence number
			2-4	3 I	Processing time for the data from the above sequence number.
			5-7	3 I	Processing date.

* I = integer (1 word)
F = single precision floating point (2 words)
S(n) = ASCII string (number of reserved words)

2.2 .FB Files

Estimates of the background component of the count rate data in the .MH files are parameterized in the .FB files. Each of the .FB files contains the parameters for both LEDs for one broad energy channel. The file names are of the form MaaaabbbbX.FB where aaaa is the beginning sequence number, bbbb is the end sequence number, and X is the energy channel code.

The background is independently parameterized for all data with a given value of ILONG from a given detector. The data from one detector for one value of ILONG consists of counts and livetimes for each of up to 900 azimuth bins. The count rates determined from these data were fit using Fourier transforms so as to determine the coefficients of the first ten terms (i.e., covering the five lowest spatial frequencies) in the Fourier expansion of the data.

Each .FB file is a sequential list of coefficients (see Figure 2.2). The length of each file is 18,000 bytes.

The details of the algorithm for reconstructing estimates of the background count rates from the coefficients in the .FB files are given in Appendix B.

2.3 Skymap Display Files

The skymap display files contain background subtracted count rates which are used to construct visual displays. The files are named Mab.Fc where a is the epoch code (i.e., 1,2,3 or T), b is the energy range code (i.e., A-F or L), and c is the detector number (i.e., 3 or 6). Each file contains roughly six months of data. The files with epoch code 1 cover the first six months of the mission, epoch code 2 stands for the second six months, and epoch 3 stands

for the remainder, i.e., ~5 months, of the mission. The epoch code "T" stands for the total and indicates that the data is the superposition of data from all three epochs.

The count rate data in these files is encoded in integer form according to:

$$j_R = 100 + 10R$$

where R is the count rate in counts/s. For bins where the livetime was zero, a value R = 0 was taken. The exposure files (energy range code L) contain integers which are the exposure times in tenths of seconds.

Each skymap display file is organized as shown in Figure 2.3. Note that the files cover ILONG ranges which extend outside the 0-224 range of binning. Data at ILONG = X is equivalent to data with ILONG = X-225 and with the sense of IAZ reversed (see Section 1.1).

The count rate data in the skymap display files has been smoothed so as to reduce the high frequency spatial noise. The smoothing function used for this purpose is defined in Appendix C. The livetime data in the exposure files has been left unsmoothed.

We note that the background count rate estimates have been revised slightly since the skymap display files were constructed. These latest background estimates were used in the sky survey analysis and are incorporated in the -.FB files. The differences between the version of the background count rate estimates used to make the skymap display files and the version recorded in the -.FB files are negligible for the purpose of visual display of the data.

3.0 Format and Description of Magnetic Tapes

3.1 Physical Description

Data tapes submitted by the MIT X-Ray Astronomy Group are standard 2400 ft, 9 track, 1600 bpi, ANSI compatible Phase Encoded tapes. The magnetic tapes are written by a Data General Nova 830 on a DG6026 dual density magnetic tape transport. The standard word length is two 8-bit bytes.

3.2 Numeric and Character Representation

The data on the magnetic tapes is either of integer, single precision floating point, double precision floating point, or character type. Appendix D, which is reproduced from Appendix E of Part II of the Data General FORTRAN IV user's manual, describes the internal representation of these data types. The representation of floating point numbers is the same as that used in IBM computers. Note also that disk file names are not null terminated.

3.3 File Organization of Data Tapes

Each magnetic tape contains a number of tape files, each of which contains one or more disk files. The organization of the magnetic tape is shown in Figure 3.1. We have chosen to duplicate the tape files so that the content of tape file 1 is identical to that of the tape file 0, the contents of tape files 2 and 3 are identical, and so on. This provides redundancy in case of parity errors in one tape file.

The tapes and the disk files which they contain are listed in Tables 3.1-3.3.

3.4 Tape File Contents

Tapes contain variable length blocks (physical records) whose length may be from 2-4096 words.

The blocks each begin with a GDUMP record and will usually contain additional words after the GDUMP record. The format of a GDUMP record is [Type Code, Record Length, Contents]. GDUMP Type Codes are single word integers and are described in Appendix E. The GDUMP Record Length is also a single word integer and it contains the length, in words, of the following GDUMP record contents. Therefore, the GDUMP Record Length does not include the two words used for the Type Code and Record Length.

GDUMP records are used to write disk files onto magnetic tape (see Figure 3.2). GDUMP record type -3 contains the information about a disk file which is given by the User File Description (UFD). The Data General documentation of the UFD is reproduced in Appendix F. This type code is found at the beginning of the tape dump of a disk file. The remainder of the block contains the first portion of the disk file. GDUMP Type Code -2 serves to mark a block as the continuation of the disk file which was written in the previous block. GDUMP Type Code -4 marks the remainder of the tape file as bad data. GDUMP Type Codes -12 and -13 are used in the double dumps of a disk file and are analogous to GDUMP Type Codes -2 and -3.

3.5 GRD Type Disk Files

Disk files may be organized into logical records which are called GRD (General Read) records. GRD records have a structure which is the same as that of a GDUMP record, namely [Type Code, Record Length, Contents]. Figure 3.3 illustrates the organization of a GRD disk file written on magnetic tape.

Table 3.1

Magnetic Tape File List 1

Tape Name	Tape File Number	Content (Disk Files)
A	0	MQ1501499.MH
	1	"
	2	M10002499.MH
	3	"
	4	M15002999.MH
	5	"
B	0	M28003999.MH
	1	"
	2	M38005199.MH
	3	"
	4	M49005999.MH
	5	"
C	0	M57006999.MH
	1	"
	2	M66007999.MH
	3	"

Table 3.2

Magnetic Tape File List 2

Tape Name	Tape File Number	Content (Disk Files)
D	0	N01501499-.FB*
	1	"
	2	N10002499-.FB
	3	"
	4	N15002999-.FB
	5	"
	6	N28003999-.FB
	7	"
	8	N38005199-.FB
	9	"
	10	N49005999-.FB
	11	"
	12	N57006999-.FB
	13	"
	14	N66007999-.FB
	15	"

* - = A-F (Each set of six files are not necessarily in the same order as the letters A through F).

Table 3.3

Magnetic Tape File List 3

Tape Name	Tape File Number	Contents (Disk Files)
E	0	M1-.F3, M1-.F6*
	1	"
	2	M2-.F3, M2-.F6*
	3	"
	4	M3-.F3, M3-.F6*
	5	"
F	0	MT-.F3, MT-.F6*
	1	"
	2	M-L.F3, M-L.F6**
	3	"

* - = (A-F)

** - = 1, 2, 3, or T

APPENDIX A

INSTRUMENTAL PARAMETERS

Each LED contained a thin phoswich scintillator of ~ 100 cm^2 geometric area behind a fine slat collimator within a cylindrical well which provided coarse collimation. The two LEDs are called detector D3 (also LED1 or the left slat detector) and detector D6 (also LED2 or the right slat detector). The collimation of each detector was nominally $1.5^\circ \times 20^\circ$ (FWHM) but the coarse collimation of D6 was affected during two episodes when it was partially occulted by the experiment blocking crystal. Details of the collimation are given below.

All events included in the present submittal were analyzed aboard the spacecraft into 64 pulse height channels (channels 0-63) by the Main Pulse Height Analyzer (MPHA). These data were combined into four broad energy channels for each detector. The channel definitions are given in Table A1.

A.1 Collimator Transmission Functions

The collimator orientations may be specified relative to a Cartesian coordinate system fixed in the spacecraft. In this system, the +z-axis was the spin axis and was nominally kept pointed at the sun. The +y-axis was the center of the fields of view of the A4 detectors. For each LED we define a new coordinate system such that $\hat{V}$, a unit vector, is toward the center of the field of view, $\hat{P}$ is perpendicular to the plane of the slats in the fine collimator, and $\hat{Q} = \hat{V} \times \hat{P}$ is in the plane of the slats (see Figure A1). Then,

expressed in xyz components, we have for D3:

$$\hat{V} = (0,\ 1,\ 0)$$

$$\hat{P} = (-\sqrt{3/2},\ 0,\ 1/2)$$

$$\hat{Q} = (1/2,\ 0,\ \sqrt{3/2})$$

and for D6:

$$\hat{V} = (0,\ 1,\ 0)$$

$$\hat{P} = (-\sqrt{3/2},\ 0,\ -1/2)$$

$$\hat{Q} = (-1/2,\ 0, \sqrt{3/2})$$

For each detector, $\hat{V}$, $\hat{P}$, and $\hat{Q}$ form an orthonormal set of vectors and may be used as the axes of a new coordinate system.

When the source direction $\hat{S}$ and $\hat{V}$, $\hat{P}$ and $\hat{Q}$ are all expressed in one common coordinate system, the angles α and β, of the source direction relative to the center of the field of view projected onto the planes perpendicular and parallel to the plane of the slats respectively, are defined by:

$$\tan\alpha = \frac{\hat{S}\cdot\hat{P}}{\hat{S}\cdot\hat{V}}, \quad \tan\beta = \frac{\hat{S}\cdot\hat{Q}}{\hat{S}\cdot\hat{V}}$$

The fine collimator transmission factor is given by:

$$T_{fine} = 1 - \frac{|\alpha|}{\alpha_{FWHM}}, \qquad |\alpha| \lesssim \alpha_{FWHM}$$

$$T_{fine} = 0 \qquad |\alpha| > \alpha_{FWHM}$$

with $\alpha_{FWHM} = 1.46^{\circ}$.

The coarse collimator transmission factor for D3 (for all time) and for

D6 when it was not partially occulted by the blocking crystal is given by:

$$T_{coarse} = \frac{e^{-(\beta - \beta_{off})^2/\beta_w^2} - K}{1 - K} \qquad |\beta| \leq 21.0^\circ$$

$$T_{coarse} = 0 \qquad |\beta| > 21.0^\circ$$

where $K = e^{-\beta_{max}^2/\beta_w^2}$ and

$$\beta_{max} = 21.0^\circ$$
$$\beta_w = 13.36^\circ$$
$$\beta_{off} = 0.25^\circ$$

For D6 during the time period 8/19/77 to 4/3/78 use the above formulae with

$$\beta_w = 12.91^\circ$$
$$\beta_{off} = 0.85^\circ$$

For this time period, this formula does not take into account the effect of the blocking crystal photomultiplier housing which was also in the field of view of detector D6. The photomultiplier housing was responsible for the slight (~10 percent) reduction of area on-axis during this time period.

For D6 during the time period 9/11/78 to 10/23/78 use the following formulae:

$$T_{coarse} = \sum_{i=0}^{4} A_i \beta^i \qquad 2^\circ < \beta \leq 21^\circ$$

$$= \sum_{i=0}^{4} B_i \beta^i \qquad -21^\circ < \beta \leq 2^\circ$$

where the coefficients A_i, B_i are given in Table A2.

Theoretical plots of the coarse transmission factors are given in Figure A2. The above formulae are empirical fits derived from a combination of flight data, machine drawings, and theoretical curves.

A.2 Energy Loss/Pulse Height Conversion Gain Calibration Results

The energy loss to pulse height conversion gain was a function of the detector orientation relative to the local magnetic field and a function of time. The following algorithm may be used to approximately determine the gain for a given time T (the reduced Julian Day = JD-2,442,500) and magnetic field $\hat{B}$ (specified in gauss in the spacecraft x, y, z coordinate system):

1) Determine the magnetic field components in spacecraft coordinates. A zero order model may be constructed in which the spacecraft is in a circular, equatorial orbit in a perfectly dipolar terrestrial field. This gives a field of constant direction and magnitude. ($\hat{B} = B_o \hat{V}$ where $B_o \sim 0.3$ gauss and $\hat{V}$ is a unit vector pointing towards the north celestial pole).

2) Determine the centroid c_j (for detector j) of the background feature of energy 27.5 keV using the formula:

$$c_j = A_{oj} + A_{1j}B_x + A_{2j}B_y + A_{3j}B_z + G_j(T)$$

where

$$G_{D3}(T) = -5.64 \times 10^{-6}(T-1258)^2 - 0.36\, e^{-(T-870)/50}$$

$$G_{D6}(T) = -1.22 + 0.0305\,(T-870) \qquad T \leq 910$$

$$= 0.00194\,(T-940) \qquad T > 910$$

and the coefficients A_{ij} are given in Table A3.

3) Compute the conversion gain f_j:

$$f_j = \frac{27.5}{c_j - 2.0} \quad \text{keV/channel}$$

4) Use the following expression to compute the energy which corresponds to the bottom of channel x_j in detector j:

$$E_j = f_j \ (x_j - 2.0)$$

TABLE A1

BROAD ENERGY CHANNEL DEFINITIONS

DETECTOR	BROAD CHANNEL DESIGNATION	MPHA CHANNELS (INCLUSIVE)	NOMINAL ENERGY RANGE (keV)
D3	A	7-9	13-25
	B	10-14	25-40
	C	15-29	40-80
	D	30-63	80-180
D6	A	7-10	13-25
	B	11-15	25-40
	C	16-32	40-80
	D	33-63	80-180

TABLE A2

COEFFICIENTS FOR COLLIMATOR TRANSMISSION CALCULATIONS

i	A_i	B_i
0	0.6773082	0.5039136
1	$-0.7615900 \times 10^{-1}$	0.3589736×10^{-1}
2	0.1272695×10^{-1}	$-0.1430436 \times 10^{-2}$
3	$-0.9976450 \times 10^{-3}$	$-0.1830180 \times 10^{-3}$
4	0.2337400×10^{-4}	-0.418600×10^{-5}

TABLE A3

COEFFICIENTS OF MAGNETIC FIELD GAIN DEPENDENCE

DETECTOR	A_0	A_1	A_2	A_3
D3	12.52	-1.72	-0.55	0.32
D6	13.35	-0.98	0.06	-0.14

APPENDIX A3

Time - ILONG Conversion Factors

Table A4 contains the ILONG ranges in which detector D6 was partially blocked and also indicates the sense of elevation in the collimator (since the partial occultation of the detector destroys the symmetry of the collimator with respect to elevation).

Table A5 contains general information on the correspondence between ILONG, time, GSFC sequence number, and the actual true orbit number.

TABLE A4

.MH File	ILONG Range	Collimator Trans Code*
MQ1501499	0-183	-1
	183-224	+1
M10002499	0-224	-1
M15002999	0-224	-1
M28003999	0-15	+1
	16-159	0
	160-224	-1
M38005199	0-224	0
M49005999	0-224	0
M57006999	0-48	-2
	49-208	0
	209-224	2
M66007999	0-48	-2
	49-224	0

* Collimator Transmission Code:
0: Unblocked collimator
+1, -1: D6 partially blocked - 8/19/77 to 4/3/78
+2, -2: D6 partially blocked - 9/11/78 to 10/23/78

For a code less than zero the sense of elevation (angle β) is reversed (i.e., the actual ecliptic longitude of the spin axis was > 180°).

Table A5

SPIN AXIS ECLIPTIC LONGITUDE	ILONG	UT M	UT D	UT Y	RJD	ACTUAL ORBIT #	ASSIGNED SEQUENCE #
140	175	8	15	77	871	45	45
160	200	9	2	77	889	330	330
180	0	9	23	77	910	646	646
200	25	10	13	77	930	963	963
220	50	11	2	77	950	1273	1273
240	75	11	22	77	970	1581	1581
260	100	12	12	77	990	1884	1884
280	125	1	1	78	1010	2192	2192
300	150	1	20	78	1029	2495	2495
320	175	2	9	78	1049	2797	2797
340	200	3	1	78	1069	3107	3107
0	0	3	21	78	1089	3417	3417
20	25	4	10	78	1109	3736	3737
40	50	5	1	78	1130	4055	4056
60	75	5	21	78	1150	4373	4374
80	100	6	11	78	1171	4698	4700
100	125	7	2	78	1192	5026	5028
120	150	7	23	78	1213	5352	5354
140	175	8	13	78	1234	5671	5673
160	200	9	2	78	1254	5993	6000
180	0	9	22	78	1274	6307	6332
200	25	10	14	78	1296	6639	6641
220	50	11	2	78	1315	6950	6952
240	75	11	22	78	1335	7258	7260
260	100	12	12	78	1355	7576	7578
280	125	12	31	78	1374	7876	7878

Notes to Table A5:

Column 1) The ecliptic longitude of the spacecraft spin axis in degrees.
2) The value of ILONG corresponding to the spin axis ecliptic longitude.
3) The date (UT) corresponding to the spin axis position of column 1.
4) The corresponding reduced Julian Date (= Julian Date - 2,442,500).
5) The actual number of the spacecraft orbit during which the spin axis was oriented with the given ecliptic longitude.
6) The sequence number assigned by NASA to the corresponding orbit. Note that the sequence numbers did not advance in a precise, logical order.

APPENDIX B

Background Reconstruction Algorithm

To obtain the estimated background count rates b_{IAZ} (IAZ = 0,...,899) from the 10 coefficients c_i (i = 1,...,10) use the formula:

$$b_{IAZ} = \frac{1}{30}\left\{ c_1 + 2 \sum_{j=2}^{5}\left[c_{2j-1} \cos\left(\frac{2\pi(j-1)IAZ}{900}\right) - c_{2j} \sin\left(\frac{2\pi(j-1)IAZ}{900}\right)\right]\right\}$$

The coefficient c_2 does not appear since it is always zero.

APPENDIX C

```
C             THE FOLLOWING FORTRAN ALGORITHM DEFINES THE SMOOTHING
C       FUNCTION USED ON THE SKYMAP DISPLAY FILES:

C       RANGE OF ILONG: ILMIN - ILMAX

        I=ILONG
        IL=ILONG-1
        IF (IL.LT.ILMIN) IL=ILMIN
        IU=ILONG+1
        IF (IU.GT.ILMAX) IU=ILMAX

C       RANGE OF IAZ: 0 - 899

        J=IAZ
        JL=J-1
        IF (JL.LT.0) JL=899
        JU=J+1
        IF (JU.GT.899) JU=0

C       THE COUNT RATE IN THE BIN DEFINED BY ILONG, IAZ IS DENOTED
C       BY R(ILONG,IAZ). THE LIVETIME FOR THIS BIN IS DENOTED BY
C       E(ILONG,IAZ). WE ALSO USE THE DEFINITION:

C       N(ILONG,IAZ)=R(ILONG,IAZ)*E(ILONG,IAZ)


C       WITH THE ABOVE DEFINITIONS THE SMOOTHING FORMULAE ARE:

        NSMOO(I,J)=N(I,J)+0.5*(N(IL,J)+N(IU,J)+N(I,JL)+N(I,JU))+
     1             0.25*(N(IL,JL)+N(IU,JL)+N(IL,JU)+N(IU,JU))
        ESMOO(I,J)=E(I,J)+0.5*(E(IL,J)+E(IU,J)+E(I,JL)+E(I,JU))+
     1             0.25*(E(IL,JL)+E(IU,JL)+E(IL,JU)+E(IU,JU))
        RSMOO(I,J)=NSMOO(I,J)/ESMOO(I,J)

C       THIS IS DONE FOR ALL POSSIBLE VALUES OF ILONG, IAZ
C       NOTE THAT WHILE SMOOTHED EXPOSURE DATA IS USED IN COMPUTING
C       THE SMOOTHED COUNT RATE DATA, UNSMOOTHED EXPOSURE DATA HAS
C       BEEN RECORDED IN THE M*L.F3 AND M*L.F6 FILES.
```

Appendix D

DATA STORAGE AND HANDLING

STORAGE OF DATA

Integers

Integers are stored in two's complement form, using one full 16-bit word. The allowable range is -2**15-1 to +2**15-1 (-32, 767_{10} to 32, 767_{10}). The storage format is:

	s	Two's Complement Magnitude
bit	Ø	15

where: s is the sign (Ø = plus, 1 = minus)

Real Numbers

Real numbers are stored in two words with the high order word preceding the low order word in memory. Position Ø contains the sign , bits 1 through 7 represent the exponent, and bits 8 through 31 are the mantissa.

The exponent is represented in excess 64 form, that is, as a seven digit, two's complement integer to which is added an offset of 100_8. Thus,

100_8 is an exponent of Ø

177_8 is an exponent of $63_{1Ø}$

077 is an exponent of $-1_{1Ø}$

The mantissa is a normalized hexadecimal fraction between .0625000 and .999999. (All floating point numbers in DGC FORTRAN IV computations are maintained in normalized form.) Real numbers have 6 to 7 decimal digits of significance.

The storage format of real numbers is:

bit	Ø	78	15
	s	exponent	mantissa
	mantissa		
	16		31

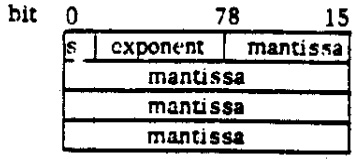
Double Precision Numbers

Double precision numbers are stored in four words. The sign and exponent are stored in the same manner as real numbers. The normalized hexadecimal mantissa is stored in the remaining 56 bits. Double precision numbers have 16 to 17 decimal digits of significance.

The storage format of double precision numbers is:

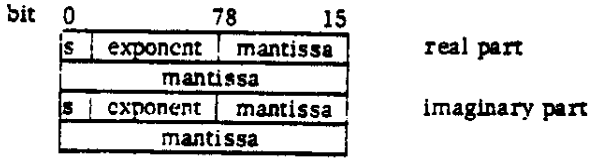
STORAGE OF DATA (Continued)

Double Precision Numbers (Continued)



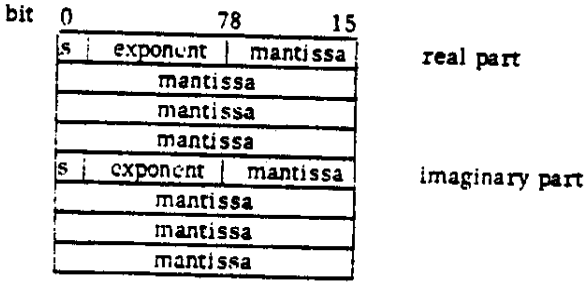
Complex Numbers

Complex numbers are stored as two real data. The real part is stored in the first two words and the imaginary part in the second two words. The storage format of complex numbers is:



Double Precision Complex Numbers

Double precision complex numbers are stored as two double precision data. The real part is stored in the first four words and the imaginary part is stored in the second four words. The storage format of double precision complex numbers is:

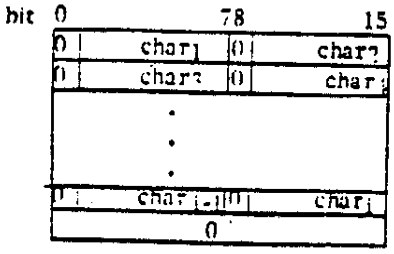


String Data

String data are stored ascending in core, with one character stored per 8-bit byte (two characters per memory word). The leftmost bit of each byte is always 0.

If the character count of a string is odd, the terminating byte is all zeroes; if the character count is even, the string is terminated by a word of all zeroes. However, when a variable is initialized to a string datum (DATA statement) and the character count is even, no all-zero word is generated.

The storage format of string data is:



Appendix E

GDUMP Type Codes

The following record types have been defined for GDUMP format tapes. Each block (physical record) starts with one of them.

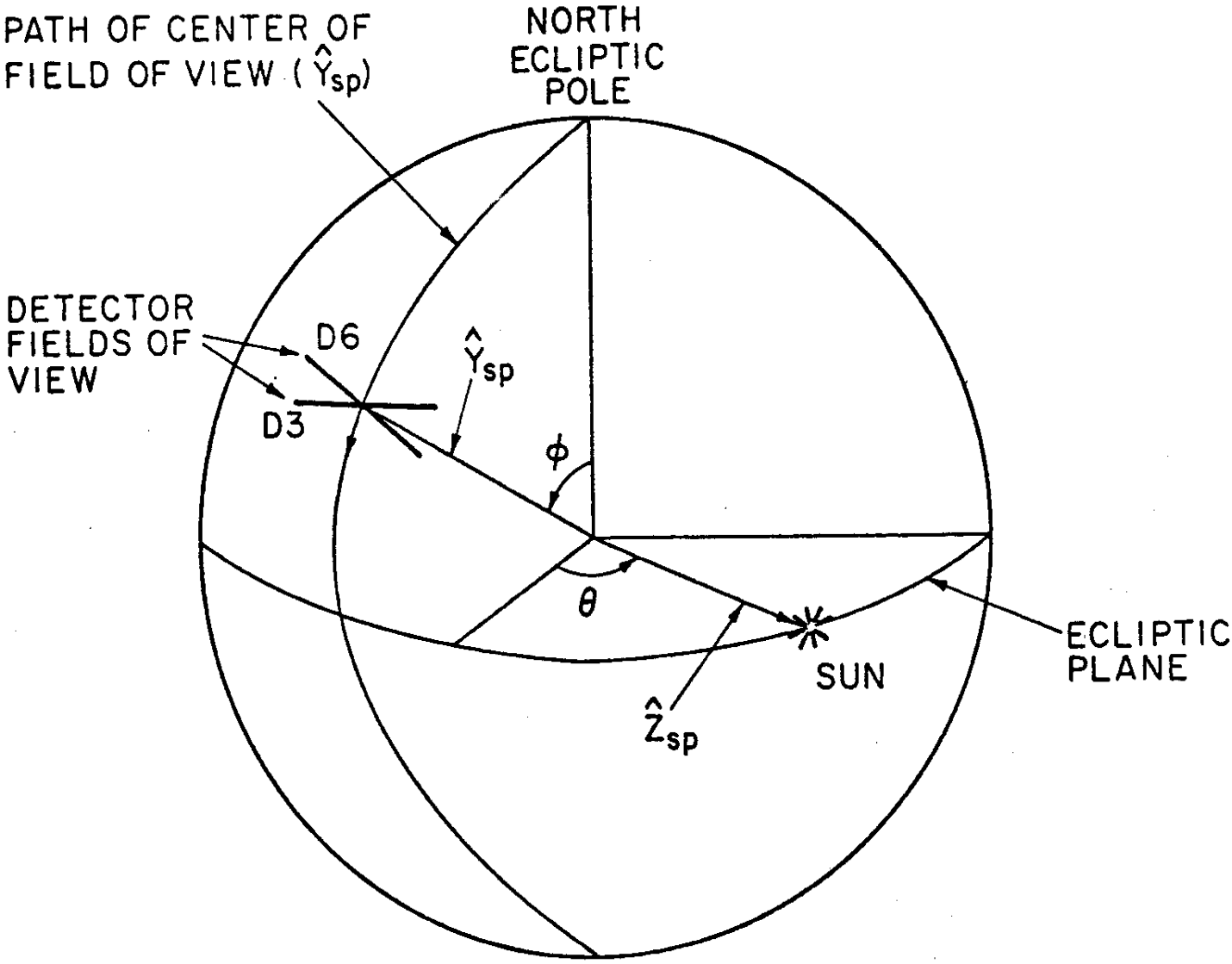
Type Code	Length	Definition
-2	0	This block is a continuation of the same disk file in the previous block.
-3	18	The UFD is found in the 18 words. The rest of the block contains the first of the disk file.
-4	0	The rest of this block and tape file have been trashed so skip to next tape mark.
-12	0	This block is a copy of the previous -2 block.
-13	18	This block is a copy of the previous -3 block.

Appendix F

Data General User file Description

Word	Type	Contents
0-4	10Ch	Filename
5	2Ch	Extension
6	I	Attributes
7	I	Link access attributes
8	I	Block Count - 1
9	I	Byte count in last block
10	I	First address (i.e. logical address of first block in file)
11	I	year/day last accessed (days since 1/1/68)
12	I	year/day created or most recently modified
13	I	Hour/minute created or most recently modified
14	I	UFD variable information
15	I	UFD variable information
16	I	User Count
17	I	DCT link

HEAO A4 SKYMAP COORDINATES

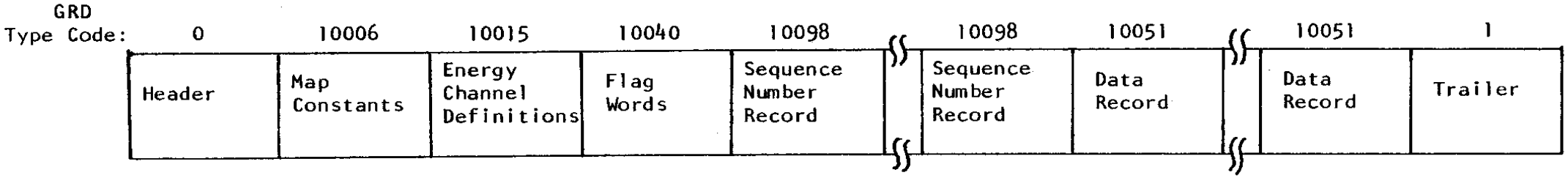


θ : ECLIPTIC LONGITUDE OF $\hat{Z}_{sp}$

ϕ : AZIMUTH OF $\hat{Y}_{sp}$ (AROUND $\hat{Z}_{sp}$)

Figure 1

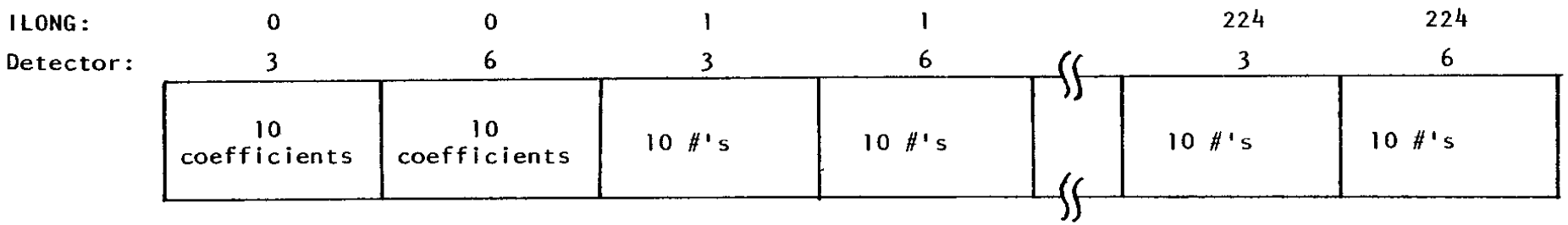
Logical Organization of -.MH Files



Order of Data Records: Value of 900*ILONG + IAZ increases.

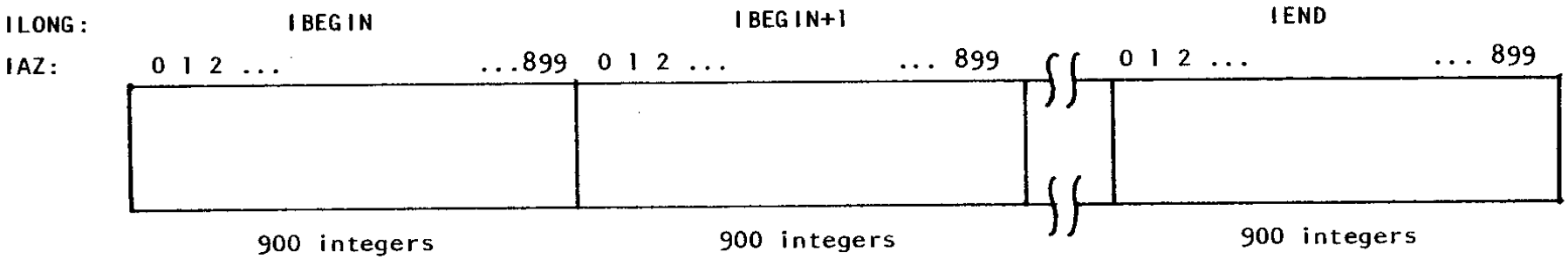
Figure 2.1

Logical Organization of -.FB Files



Each coefficient is a floating point number (= 2 words or 4 bytes).

Figure 2.2

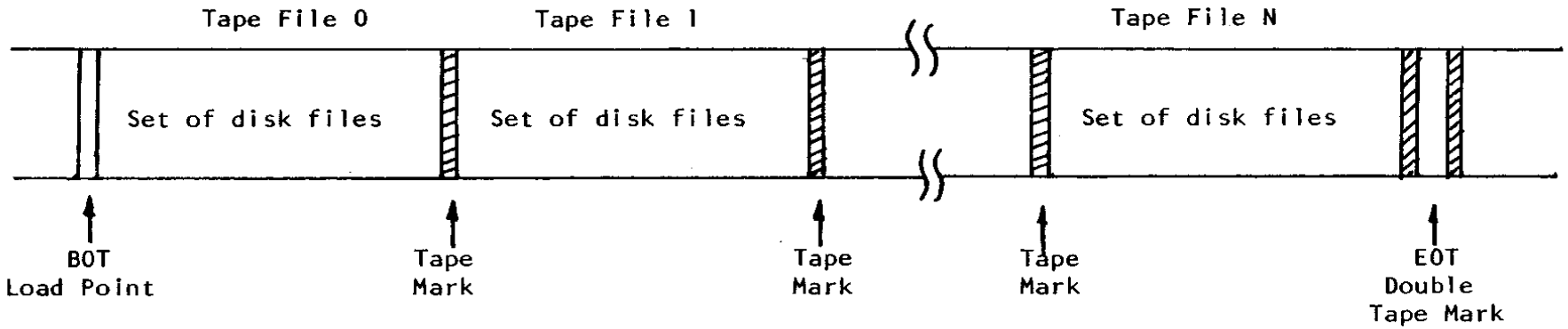


1 integer = 1 word = 2 bytes

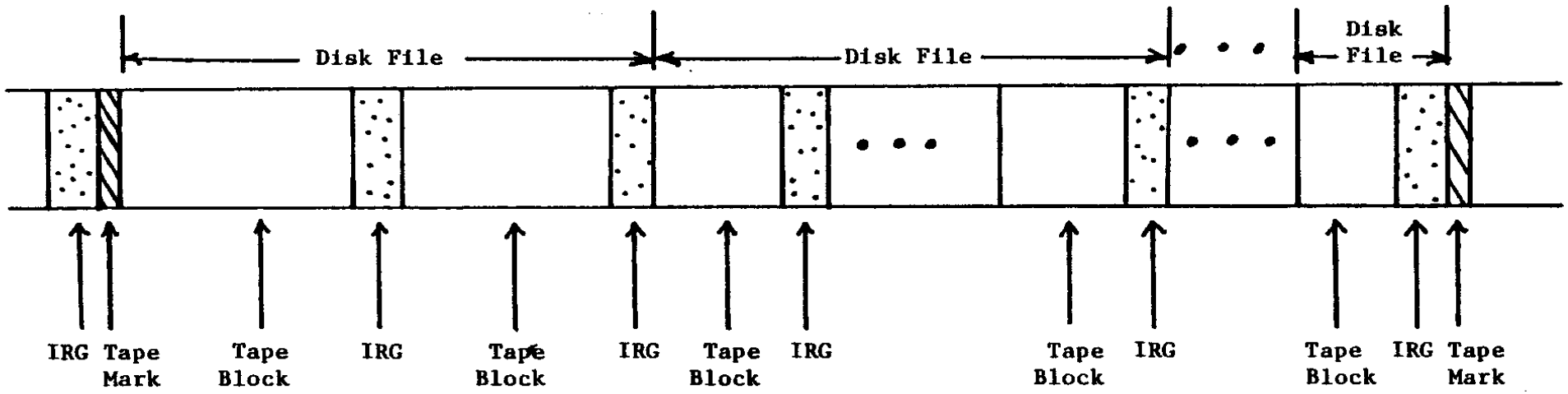
Epoch Code	IBEGIN	IEND	File length (bytes)
1	184	424	433800
2	168	424	462600
3	168	376	376200
T	168	424	462600

Logical Organization of Skymap Display Files

Figure 2.3

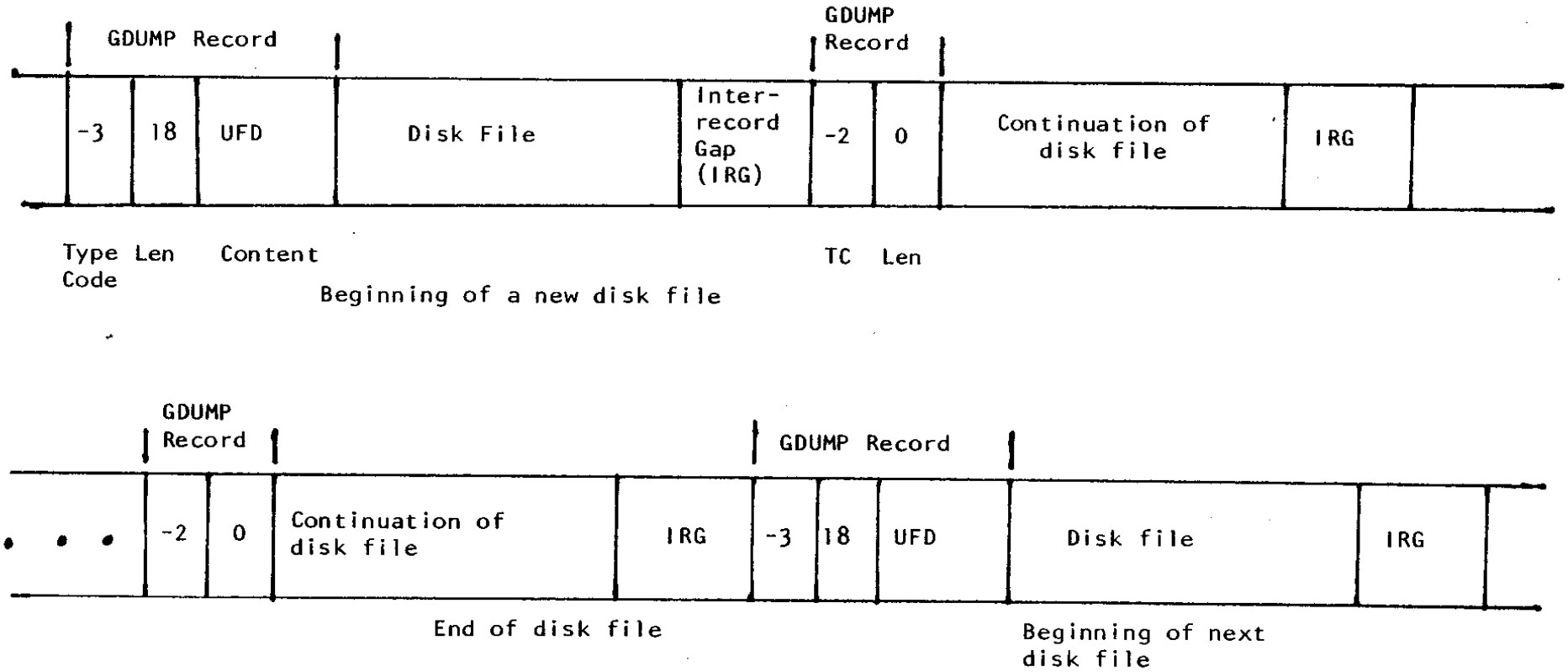


File Structure of a HEAO-1 A4 Data Tape



Disk File Structure within a Tape File

Figure 3.1



Format of a Magnetic Tape written using GDUMP

Figure 3.2

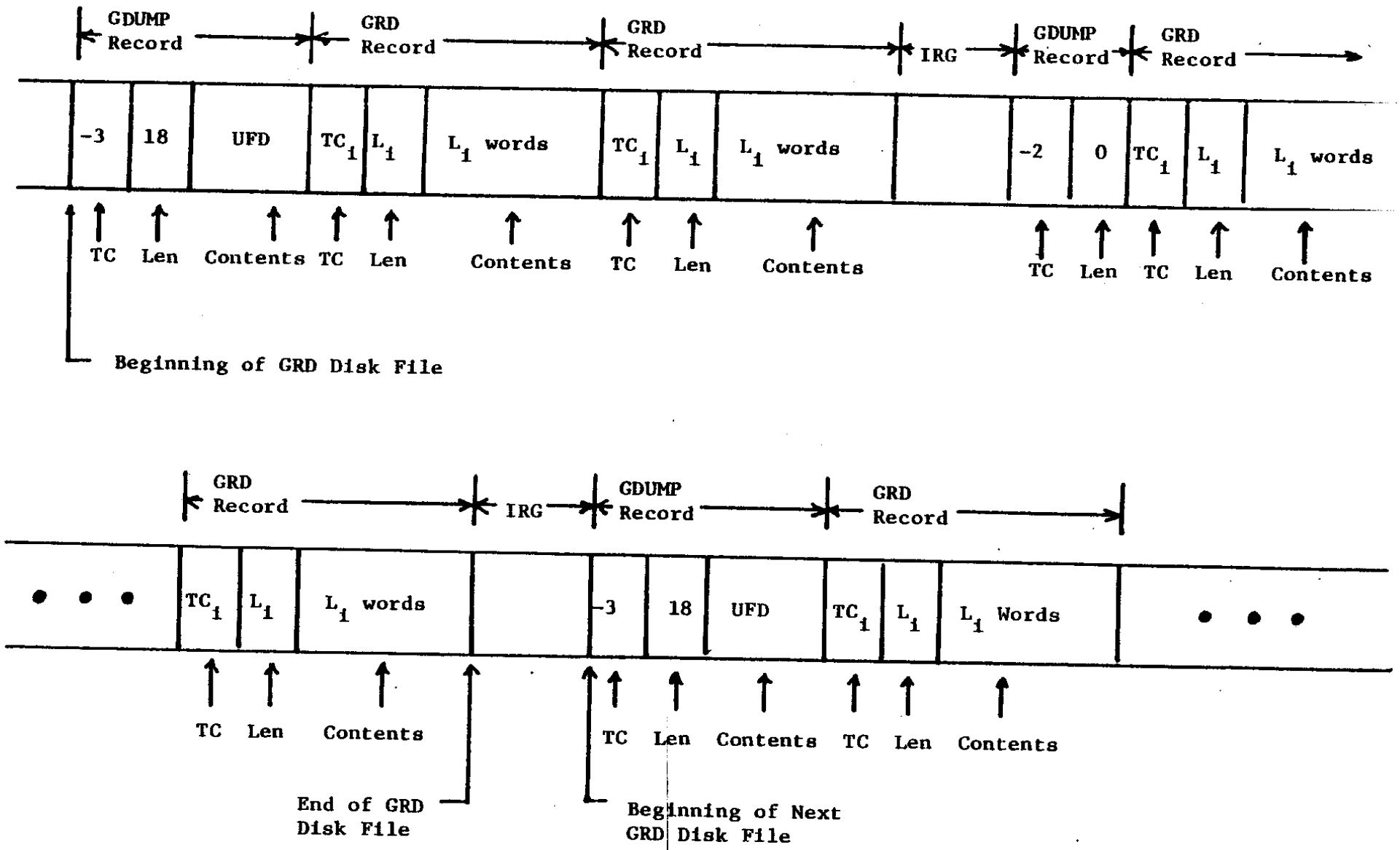


Figure 3: Structure of a GRD Disk File Written onto Magnetic Tape

Figure 3.3

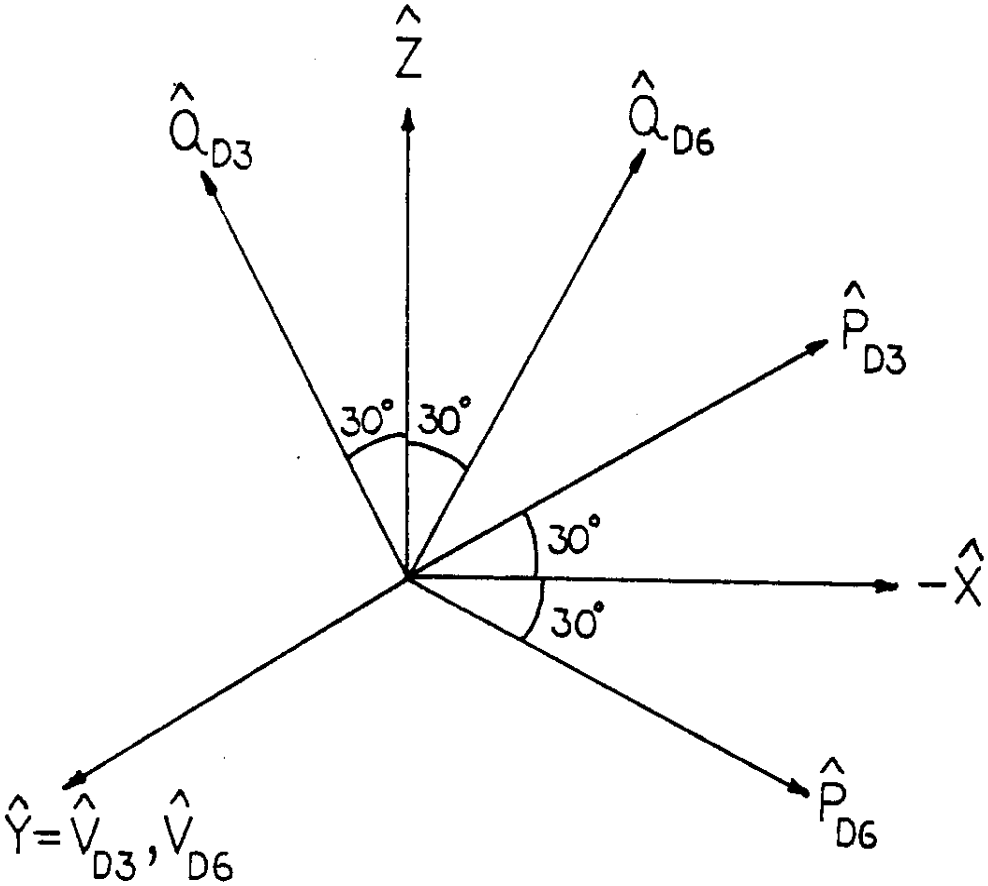


Figure A1: Reference vectors for the slat collimators of detectors D3 and D6 relative to the spacecraft coordinate system. $\hat{V}$ is the view direction, $\hat{P}$ is perpendicular to the plane of the slats, and $\hat{Q}$ is in the plane of the slats and is perpendicular to both $\hat{V}$ and $\hat{P}$.

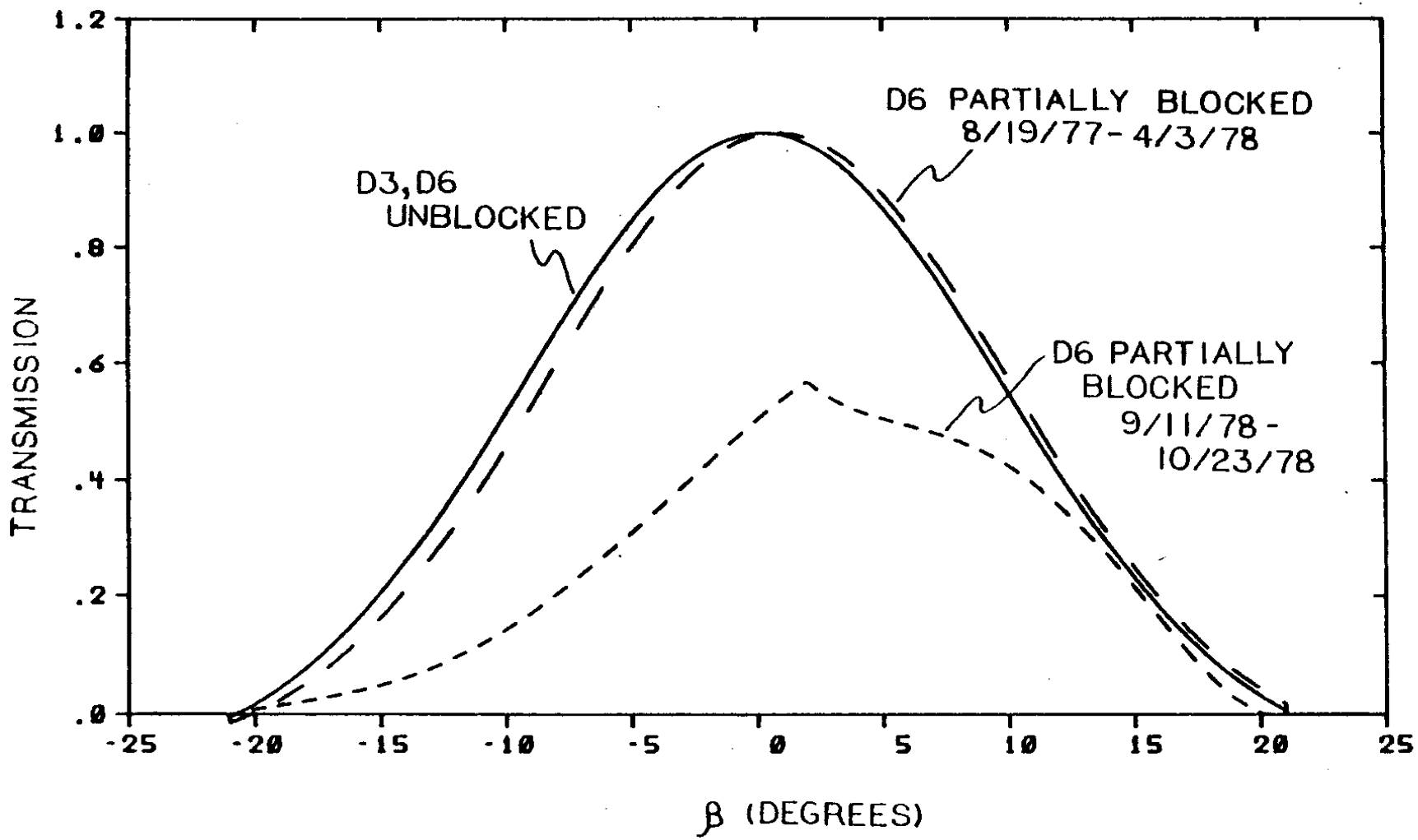


Figure A2: The collimator transmission for a source in the plane of the slats of the collimator as a function of the elevation angle β in the plane of the slats.

DUMP OF TAPE DOUTE

D - 59746
8/01/77 - 1/1/79

INPUT TAPE DOUTE ON TU1
DATA INPUT FS NF 6 SR 1 1 1 SR 6 1 1 SR 6 LAST 1

FILE 1 RECORD M1A1 LENGTH 8190BYTES

(0)	FFFD0012	40314100	00000000	00004633	00040000	034F0088	80061402	14370A27	00000100	4001001A
(40)	00640063	00630064	0062005F	00610064	00640063	00620062	00630063	00630062	00620062	00620064
(80)	00650064	00630063	00630062	0061005F	00600061	00610062	00640063	00620065	00660065	00640065
(120)	00650064	00630063	00630063	00620062	00610061	00610063	00640064	00630062	00620063	00630063
(160)	00630062	00630064	00640062	00630066	00650061	00610061	00600060	005F005F	00600062	00640066
(200)	00660063	00640065	00650064	00630063	00650065	00630062	00640064	00640064	0061005F	00610062
(240)	00610061	00630065	00640062	00620063	00620061	00630064	00640063	00630065	00660066	00660065
(280)	00640062	00640065	00630062	00620062	00620064	00640063	00650064	00610061	00640067	00670065
(320)	00630064	00660066	00650065	00650065	00630063	00630063	00630061	00600060	0060005F	005F0060
(360)	00620061	00600060	00620060	00650065	00660064	0060005F	005D005D	005E0060	00620061	00620061
(400)	00610061	00610064	00670066	00620061	00630062	00610060	00620064	00650063	00610062	00630064
(440)	00640066	00670063	00600060	005E005F	00620061	00600060	005F005E	00600063	00680068	00640063
(480)	00620060	00630067	00630062	00660064	005F005E	005F0061	00620062	00630062	00610063	00650065
(520)	00640063	00610061	00630064	00660066	00630061	00640066	00630060	00610063	00630062	00620062
(560)	00630064	00650064	00650065	00630061	00630063	00630064	00640060	00600064	00650064	0061006D
(600)	00610060	005E005F	005F005F	005F005D	005C005D	005E005F	005E005E	005F0061	00620062	00640064
(640)	00610062	00650066	00660066	00640063	00630063	00640064	00650065	00630061	00610062	00640064
(680)	00630063	00640063	00630065	00640062	00610060	00600062	00640064	00640063	00620062	00600060
(720)	00620063	00630061	00610061	00630067	00670065	00630063	00630064	00670066	00640063	00620064
(760)	00640062	00600060	00640066	00640063	00630063	00630062	00630065	00660065	00640063	00630063
(800)	00630063	00620061	00620064	00640064	00640063	00630063	00610062	00640063	00630065	00630062
(840)	00630066	00670065	00610061	00630061	005F0061	00640063	00630063	00620062	00630065	00630063
(880)	00640063	00630062	00600060	00600060	00620061	00620065	00650062	00600060	00620064	00640063
(920)	00630064	00630066	00620060	006A0068	00670065	00630062	00620064	00640065	00650063	00650066
(960)	00640063	00610060	00600061	00640065	00620062	00640063	00620063	00630063	00640064	00640063
(1000)	00620064	00640062	00600061	00630064	00640063	00620062	00640062	00600062	00650064	00620063
(1040)	00640063	00600061	00630062	00600060	00610061	00620062	00620063	00630066	00650063	00650065
(1080)	00640064	00650063	00620063	00630064	00630060	00600062	00620064	00650064	00630064	00660065
(1120)	00640065	00650062	00620063	00630064	00650065	00660067	00660065	00640066	00690068	00650063
(1160)	00640066	00680067	00660064	00630063	00640065	00660065	00650067	00670066	00640064	00640063
(1200)	00640069	006B006A	00690069	00670065	00650065	00650065	00640061	00610063	00630062	00630064
(1240)	00660068	00670065	00630061	00630065	00630062	00620061	00620064	00650064	00640065	00650064
(1280)	00650067	00650062	00610062	00640064	00630063	00660067	00640063	00640063	00620063	00650064
(1320)	00650066	00660064	00630063	00640064	00620062	00620062	00640065	00640063	00620061	00630064
(1360)	00650064	00610061	00640066	00660063	00610061	00630063	00620062	006400EB	007F00A4	000600F4
(1400)	00F100D0	00B6008C	006F0063	00620064	00650064	00630064	00660064	00640065	00640064	00640062
(1440)	00600060	00600060	00610063	00630063	00620062	00640064	00620063	00640062	00620064	00630060
(1480)	00600061	0061005F	005F0061	00610061	00620062	0062005F	005C005F	00620062	00620064	00650062
(1520)	00620062	00610062	00640062	00610062	00630063	00630062	00640063	00620061	00630065	00680068
(1560)	00650062	00600060	00630064	00630066	00680065	00640066	006A006A	00630061	00630063	00640066
(1600)	00620062	00670067	00650063	00620065	00650061	005F0062	00640061	005D005E	00620063	00620063
(1640)	00630064	00650064	00640062	00630065	00640065	00670066	00630061	00620067	00690065	00630062
(1680)	00620063	00640061	00610064	00650064	00620060	00610065	00670067	00650064	00630062	00610064
(1720)	00660066	00640062	00600061	00620061	00610063	00620063	00630061	00610065	00650063	00620062
(1760)	00610061	00630065	00640063	00630062	00630062	00620063	00620062	00640066	00630061	00610064
(1800)	00630062	00610061	00630063	00630063	00610062	00630063	00640066	00640062	00630063	00620063
(1840)	00630063	00630063	00620060	00620064	00640063	00620062	00630063	00630062	00620062	00620063
(1880)	00640064	00640063	00620062	00610060	00610061	00610062	00630063	00630064	00660064	00630064
(1920)	00650064	00630064	00640063	00620062	00610061	00620063	00640064	00640063	00620062	00620062
(1960)	00630062	00620064	00640063	00640065	00640062	00620062	00620062	00610060	00610063	00630065
(2000)	00640063	00630064	00640064	00630064	00640064	00630062	00640064	00640064	00610060	00620063
(2040)	00620062	00630064	00640062	00630063	00630062	00630064	00640062	00620063	00650065	00640064
(2080)	00630062	00630064	00650065	00630062	00620064	00640063	00650064	00620061	00630064	00640064
(2120)	00620063	00650065	00640064	00640064	00630063	00630063	00630062	00620062	00620062	00620063
(2160)	00630062	00620063	00620063	00640064	00650064	00630062	00620064	00640063	00630063	00640063
(2200)	00630064	00630064	00640064	00610061	00630063	00620061	00620063	00640062	00610063	00630064
(2240)	00640063	00640064	00640062	00620063	00630062	00630064	00640062	00610062	00650065	00630061
(2280)	00620062	00630064	00630061	00620063	00620061	00620062	00620062	00640063	00620063	00630063

(7600)	00630064	00630062	00630063	00630063	00630064	00650064	00640065	00640062	00600062	00640063
(7640)	00640063	00620063	00640063	00630064	00650065	00640063	00630063	00630062	00600061	00630063
(7680)	00630063	00630063	00650065	00630062	00630063	00620062	00620062	00610061	00610061	00620062
(7720)	00610061	00610063	00630063	00620063	00640064	00640064	00620063	00640063	00630064	00640062
(7760)	00620063	00640063	00620063	00630063	00640064	00640063	00620062	00630063	00630062	00610061
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(8000)	00620063	00630062	00630064	00640063	00620062	00610060	00640067	00660063	00640066	00650064
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(8080)	00630063	00620062	00630064	00630064	00640063	00630063	00640063	00620062	00630063	00640064
(8120)	00640064	00660069	00680068	00680067	00650064	00640063	00630062	00620062	00630063	00630064
(8160)	00630062	00610062	00620062	00630063	00620061	00610061	00620065	0064		

FILE	INPUT RECS.	DATA RECORDS INPUT	MAX. SIZE	READ ERROR SUMMARY PERM	ZERO B	SHORT	UNDEF.	INPUT RETRIES #RECS.	TOTAL#
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(160)	00640063	00640065	00660066	00650064	00630063	00650063	00610062	00640064	00630064	00650064
(200)	00630064	00660065	00630062	00600060	00620064	00640064	00640064	00620060	00610065	00660065
(240)	00640064	00640064	00620061	00630064	00620060	005E0060	00630063	00620063	00640064	00630062
(280)	00620063	00630063	00630062	00610062	00630062	00600060	00600062	00630062	00620063	00620060
(320)	005F005F	00610065	00660065	00650065	00630063	00630063	00620063	00650066	00650063	00620063
(360)	00650066	0063005F	005F0061	0061005F	005E0062	00640062	00610065	00670066	00640061	005F0060
(400)	00610064	0068006A	00670063	00620061	00610062	00620060	00610063	00630062	00620062	00640066
(440)	00650064	00640064	00650068	00660063	00630063	00620062	00620061	00610063	00640066	00670065
(480)	00650067	00640062	00620063	00630063	00630062	00620062	00620063	00630062	00620064	00650064
(520)	00650068	00670064	00630064	00640062	00610060	00620066	00650065	00650063	00630063	00620063
(560)	00630062	00620063	00650065	00630065	00650063	00610061	00620063	00630063	00640064	00640063
(600)	00650065	00650064	00640065	00640063	00620062	00620061	00620062	00630063	0062005F	005F0061
(640)	00620061	00610062	00620061	00610061	00620064	00660067	00660063	00630062	00630064	00630062
(680)	00610061	00620062	00630064	00640065	00650064	0062005F	005D005E	00620063	00620061	00600061
(720)	00630066	00670064	00630064	00650065	00670066	00620060	00600061	005F005E	00600062	00620063
(760)	00640063	00610062	00640065	00650063	00620062	00630064	00660067	00650063	00630064	00630062
(800)	00640068	00660064	00640063	00630065	00670066	00670067	00640062	00620060	00610064	00650063
(840)	00620063	00650065	00650062	005F0060	00610061	00600061	00640065	00650063	00600060	00630065
(880)	00640063	00620062	00620063	00640063	00620065	00660065	00650064	0062005F	005E0062	00650066
(920)	00670066	00630062	00630064	00630061	00610062	00610062	00640063	00630063	00630064	00640063
(960)	00610060	00620063	00620062	00640062	00620064	00640063	00620062	00640064	00630062	00630065
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(1040)	00660067	00680067	00650066	00660064	00640064	00620062	00640064	00630062	00620062	00620061
(1080)	005F005F	00610062	00640063	00610060	00620063	00620060	00610064	00640063	00630062	00610063
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(1200)	00610060	00610064	00670065	00610062	00630063	00620061	00620064	00630061	00620063	00630063
(1240)	00650067	00640064	00690068	00660064	00630063	00630063	00620062	00620062	00600062	00650062
(1280)	00620064	00640063	00630066	00670067	00650062	00620064	00660064	00630063	00620062	00640064
(1320)	00630064	00640063	00630063	00620060	00600060	00600061	00630064	00630061	00610062	00630064
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(1560)	00620064	00660066	00650065	00660064	00610062	00630063	00610061	00630063	00640063	00620062
(1600)	00600062	00640063	00630062	00640066	00650063	00650067	00660065	00630062	00620062	00630064
(1640)	00640063	00630063	00620063	00650066	00650064	00610060	00610062	00630063	00640064	00610060
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DUMP OF TAPE DOUTF

D-59747
8/21/79 - 11/8/79

INPUT TAPE DOUTF ON TU1
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F3

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(680)	00630062	00630063	00630063	00640065	00640062	00620061	00610062	00630063	00620062	00620062
(720)	00640065	00650064	00630063	00630064	00660065	00620062	00620061	00610062	00630063	
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(7600)	00650065	00640064	00640064	00640064	00640063	00650065	00630062	00620064	00640063	00630063
(7640)	**00620062**	**00630062**	**00620063**	**00630063**	**00630063**	**00640064**	**00630062**	**00630064**	**00640063**	**00640064**
(7680)	00640063	00630064	00630062	00630064	00640064	00630062	00620063	00640063	00630064	00640063
(7720)	00620061	00630063	00630063	00630063	00630063	00630064	00640063	00610061	00620063	00630064
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(7960)	00630064	00640063	00620062	00620063	00640065	00650065	00640063	00640064	00640064	00620062
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FILE	INPUT RECS.	DATA RECORDS INPUT	MAX. SIZE	READ ERROR SUMMARY PERM	ZERO B	SHORT	UNDEF.	INPUT RETRIES #RECS.	TOTAL#
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FILE 4 RECORD 1 LENGTH 8190 BYTES

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(160)	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**
(200)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(240)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(280)	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**
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(360)	000F0013	00110010	0014000E	0013000E	00150010	00170010	0015000E	0015000F	0016001C	0016000F
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(480)	000E0010	000C0010	000E0014	000E0013	000F0013	00140000	00000000	00000000	00000000	00000000
(520)	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**
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(640)	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**
(680)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(720)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(760)	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**
(800)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
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(960)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
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(1120)	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**
(1160)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(1200)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(1240)	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**
(1280)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(1320)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	000A0011	000F0014	000E000F
(1360)	**0013000C**	**0017000F**	**0013000F**	**00140012**	**001200CE**	**0016000F**	**0013000D**	**0013000B**	**000E000A**	**00080009**
(1400)	00080007	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(1440)	00000010	0014000F	0015000E	0015000F	0013000E	001A000F	000E0016	00100016	000F0012	000E0017
(1480)	**000C0013**	**00100014**	**000C0015**	**00000000**	**00000000**	**00000000**	**0000000F**	**000E0000**	**00000000**	**00000000**
(1520)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(1560)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(1600)	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**
(1640)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(1680)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(1720)	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**	**00000000**
(1760)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000

MOORE BUSINESS FORMS, INC. MO 22" 3L 14 7/8 x 11

DUMP OF TAPE DOUTA

D-59748
8/21/77 -
2/22/78

INPUT TAPE DOUTA ON TU1
DATA INPUT H9 NF 6 SR 1 1 1 SR 6 1 1 SR 6 LAST 1

FILE 1 RECORD NO 115 LENGTH 8180 BYTES

(0)	FFFC0012	40513135	30313439	39004D48	00C40000	21D5003C	4B2714B5	11930C13	00000100	4001001A
(40)	00000008	27120000	000C0035	003B0004	00150050	27160014	0384C0E1	40FFFFFD	00000000	00000000
(80)	BB512BE4	40EAC46F	C0661471	3BBAAE6D	40661471	40EAC46F	271F008E	000A0000	00000001	00090003
(120)	41204433	00000000	00000000	00000000	00000000	0000000A	000E0003	42204433	00000000	00000000
(160)	00000000	00000000	0000000F	001D0003	43204433	00000000	00000000	00000000	00000000	0000001E
(200)	003F0003	44204433	00000000	00000000	00000000	00000000	00000040	00400003	4C495645	2054494D
(240)	45204433	00000000	00000000	00000001	00090006	41204436	00000000	00000000	00000000	00000000
(280)	0000000A	000E0006	42204436	00000000	00000000	00000000	00000000	0000000F	001D0006	43204436
(320)	00000000	00000000	00000000	00000000	0000001E	003F0006	44204436	00000000	00000000	00000000
(360)	00000000	00000040	00400006	4C495645	2054494D	45204436	00000000	00000000	27380004	00000000
(400)	00000000	27720007	00960013	00080014	0002000D	00502772	00070097	0013000B	00320002	000D0050
(440)	27720007	00980013	001D0001	0002000D	00502772	00070099	0013C020	00340002	000D0050	27720007
(480)	00940013	00240020	0002000D	00502772	0007009B	00130027	00150002	000D0050	27720007	009C0013
(520)	0028003A	0002000D	00502772	0007009D	0013002A	00140002	000D0050	27720007	009E0013	002D0020
(560)	000200CD	00502772	0007009F	00130031	001A0002	000D0050	27720007	00A00013	00350014	0002000D
(600)	00502772	000700A1	00130038	00390002	000D0050	27720007	00A20014	00000023	0002000D	00502772
(640)	000700A3	00140005	00080002	000D0050	27720007	00A40014	000A0002	0002000D	00502772	000700A5
(680)	0014000E	000F0002	000D0050	27720007	00A60014	00110022	0002000D	00502772	000700A7	00140015
(720)	000A0002	000D0050	27720007	00A80014	00180037	0002000D	00502772	000700A9	0014001C	00210002
(760)	000D0050	27720007	00AA0014	001F0015	0002000D	00502772	0007000AB	00140039	00000002	000D0050
(800)	27720007	00AC0014	003A0034	0002000D	00502772	000700AD	00150000	002E0002	000D0050	27720007
(840)	00AE0015	00040009	0002000D	00502772	000700AF	00150008	00110002	000D0050	27720007	00B00015
(880)	000B0026	0002000D	00502772	000700B1	000D0037	00340002	000E0050	27720007	00B2000D	003B0018
(920)	0002000E	00502772	000700B3	000E0004	00130002	000E0050	27720007	00B4000E	00090010	0002000E
(960)	00502772	000700B5	000E0000	000B0002	000E0050	27720007	00B6000E	00100029	0002000E	00502772
(1000)	000700B7	000E0014	00090002	000E0050	27720007	00BC000E	0016002A	0002000E	00502772	000700BD
(1040)	000E0017	00130002	000E0050	27720007	00BE000E	00190035	0002000E	00502772	000700BF	000E001D
(1080)	00120002	000E0050	27720007	00C0000E	0020002C	0002000E	00502772	000700C1	000E0024	002C0002
(1120)	000E0050	27720007	00C2000E	0029002D	0002000E	00502772	000700C4	000E002D	00130002	000E0050
(1160)	27720007	00C6000E	002E0013	0002000E	00502772	000700C8	000E0034	00350002	00130050	27720007
(1200)	00C8000E	00370029	00320013	00502772	000700CE	000E0038	00170002	00130050	27720007	00D6000E
(1240)	003B0012	00020013	00502772	000700D7	000F0002	00100002	00130050	27720007	00D8000F	0004003A
(1280)	00020013	00502772	000700D9	000F0006	00380002	00130050	27720007	00DA000F	0009000E	00020013
(1320)	00502772	000700DB	000F000C	001E0002	00130050	27720007	00DC000F	000E002B	00020013	00502772
(1360)	000700DD	000F0011	002E0002	00130050	27720007	00DE000F	0013003A	00020013	00502772	000700DF
(1400)	00CF001A	00220002	00130050	27720007	00E0000F	001E0012	00020013	00502772	000700E1	000F0021
(1440)	00270002	00130050	27720007	00E2000F	00220027	00020013	00502772	000700E3	000F002B	001B0002
(1480)	00130050	27720007	00E4000F	002A0021	00020013	00502772	000700E5	000F002E	000D0002	00130050
(1520)	27720007	00E6000F	00310013	00020013	00502772	000700E7	000F0034	00250002	00130050	27720007
(1560)	00E8000F	00380004	00020013	00502772	000700E9	000F003A	00390002	00130050	27720007	00EB0010
(1600)	00010037	00020013	00502772	000700EC	00100005	00060002	00130050	27720007	00ED0010	00090011
(1640)	00020013	00502772	000700EE	0010000C	00380002	00130050	27720007	00EF0010	00100021	00020013
(1680)	00502772	000700F0	00100014	0031002	00130050	27720007	00F10010	00190005	00020013	00502772
(1720)	000700F2	0010001D	00030002	00130050	27720007	00F30010	0020C024	00020013	00502772	000700F4
(1760)	00100024	00090002	00130050	27720007	00F50010	0027001A	00020013	00502772	000700F6	0010002A
(1800)	00310002	00130050	27720007	00F70010	002D0037	00020013	00502772	000700F8	00100031	00070002
(1840)	00130050	27720007	00F90010	00350001	00020013	00502772	00070CFA	00150021	003B0002	00130050
(1880)	27720007	00FB0015	0025002B	00020013	00502772	000700FC	00150029	000A0002	00130050	27720007
(1920)	00FD0015	002C0022	00020013	00502772	000700FE	0015002F	002C0002	00130050	27720007	00FF0015
(1960)	00340006	00020013	00502772	00070100	00150038	00050002	00130050	27720007	01010015	003B002E
(2000)	00020013	00502772	00070102	00160003	00220002	00130050	27720007	012C0000	00090039	00020014
(2040)	00502772	0007012D	0000000A	00270002	00140050	27720007	01300000	000C0009	00020014	00502772
(2080)	00070133	0000000D	00330002	00140050	27720007	01370000	000F002C	00020014	00502772	00070138
(2120)	00000010	001A0002	00140050	27720007	01390000	0011000A	00020014	00502772	0007013B	00000012
(2160)	000B0002	00140050	27720007	013C0000	00120035	00020014	00502772	0007013D	00000013	00240002
(2200)	00140050	27720007	013E0000	00140013	00020014	00502772	0007013F	00000015	00020002	00140050
(2240)	27720007	01420000	0016002D	00020014	00502772	00070145	00000018	000F0002	00140050	27720007
(2280)	01460000	00180039	00020014	00502772	00070154	0000001E	003B0002	00140050	27720007	01550000

(7600)	001B0050	27720007	03100002	00000036	0002001B	00502772	00070311	00020005	00260002	001B0050
(7640)	27720007	03120002	000A0037	0002001B	00502772	00070313	0002000E	00130002	001B0050	27720007
(7680)	03140002	0012002C	0002001B	00502772	00070315	00020017	00130002	001B0050	27720007	03160002
(7720)	00190000	0002001B	00502772	00070317	0002001B	002E0002	001B005C	27720007	03180002	001F001F
(7760)	0002001B	00502772	00070319	00020023	000C0002	001B0050	27720007	031A0002	0026002C	0002001B
(7800)	00502772	0007031B	0002002A	00380002	001B0050	27720007	031C0002	002E0030	0002001B	00502772
(7840)	0007031D	00020032	00260002	001B0050	27720007	031E0002	0037003B	0002001B	00502772	0007031F
(7880)	00030000	00060002	001B0050	27720007	0320000B	003A000E	0002001B	00502772	00070321	000C0003
(7920)	00010002	001B0050	27720007	0322000C	00060032	0002001B	00502772	00070323	000C0009	002F0002
(7960)	001B0050	27720007	0324000C	000D0033	0002001B	00502772	00070325	000C0011	00110002	001B0050
(8000)	27720007	0326000C	00130017	0002001B	00502772	00070327	000C0016	00270002	001B0050	27720007
(8040)	0328000C	001A002B	0002001B	00502772	00070329	000C001E	00010002	001B0050	27720007	032A000C
(8080)	00210030	0002001B	00502772	0007032B	000C0025	00340002	001B0050	27720007	032C000C	00290027
(8120)	0002001B	00502772	0007032D	000C002E	001D0002	001B0050	27720007	032E000C	00320028	0002001B
(8160)	00502772	0007032F	000C0035	002D0002	001B0050					

FILE	INPUT RECS.	DATA RECORDS INPUT	MAX. SIZE	READ ERROR SUMMARY PERM	ZERO B	SHORT	UNDEF.	INPUT RETRIES #RECS.	TOTAL #
1	545	545	8180	0	0	0	0	0	0

0021 996 H

FILE 6 RECORD 15 LENGTH 8180BYTES

(0)	FFFD0012	4D513135	30303239	39394D48	00040000	2A9500E4	7B64146A	11AE0E27	00000100	4001011A
(40)	00000008	27120000	0000003B	00120005	00160050	27160014	038400E1	40FFFFFD	00000000	00000000
(80)	BB512BE4	40EAC46F	C0661471	3BEAAE6D	40661471	4CEAC46F	271FC08E	0C0A00C0	0000C001	00090003
(120)	41204433	00000000	00000000	00000000	00000000	0000000A	000EC003	42204433	00000000	00000000
(160)	00000000	00000000	0000000F	001D0003	43204433	00000000	00000000	00000000	00000000	0000001E
(200)	003F0003	44204433	00000000	00000000	000C0000	00000000	00000040	00400003	4C495645	2054494D
(240)	45204433	00000000	00000000	00000001	00090006	41204436	0000C000	0C000C00	00000000	00000000
(280)	0000000A	000E0006	42204436	00000000	00000000	00000000	00000000	0000000F	001D0006	43204436
(320)	00000000	00000000	00000000	00000000	0000001E	003F0006	44204436	00000000	00000000	00000000
(360)	00000000	00000040	00400006	4C495645	2054494D	45204436	0000C000	0C000000	27380004	00000000
(400)	00000000	27720007	05DC0012	001B0014	0003000E	00502772	0007C5DD	0012001E	00100003	000E0050
(440)	27720007	05DE0012	00210021	0003000E	00502772	000705DF	00120024	00390003	000E0050	27720007
(480)	05E00012	0028000C	0003000E	00502772	000705E1	00120029	00370003	000E0050	27720007	05E20012
(520)	002C000D	0003000E	00502772	000705E3	00120031	00070003	000E0050	27720007	05E70012	00350031
(560)	0003000E	00502772	000705E8	00120039	00330003	000E0050	27720007	05E90013	0001003A	0003000E
(600)	00502772	000705EA	00130005	00170003	000E0050	27720007	05EB0013	0008002E	0003000E	00502772
(640)	000705EC	0013000C	00160003	000E0050	27720007	05ED0013	000E003B	0003000E	00502772	000705EE
(680)	00130012	00150003	000E0050	27720007	05EF0013	0016001A	0003000E	00502772	000705F0	00130018
(720)	00290003	000E0050	27720007	05F10013	001D0002	0003000E	00502772	000705F2	00130021	00120003
(760)	000E0050	27720007	05F30013	00250029	0003000E	00502772	000705F4	0013002A	00050003	000E0050
(800)	27720007	05F50013	002E0035	0003000E	00502772	000705F7	0013C032	00370003	000E0050	27720007
(840)	05F80013	00360021	0003000E	00502772	000705F9	00130039	003B0003	000E0050	27720007	05FA0014
(880)	0001001D	0003000E	00502772	000705FB	00140004	003B0003	000E0050	27720007	05FC0014	00070022
(920)	0003000E	00502772	000705FD	0014000B	000E0003	000E0050	27720007	05FE0014	000E0037	0003000E
(960)	00502772	000705FF	00140012	001B0003	000E0050	27720007	06000014	0016001D	0003000E	00502772
(1000)	00070601	0014001B	00090003	000E0050	27720007	06020014	001F001A	0003000E	00502772	00070603
(1040)	00140024	000F0003	000E0050	27720007	06070014	0028001B	0003000E	00502772	00070608	0014002C
(1080)	00070003	000E0050	27720007	06090014	002F0026	0003000E	00502772	0007060A	00140032	00310003
(1120)	000E0050	27720007	060B0014	00360029	0003000E	00502772	0007060C	0014003A	000A0003	000E0050
(1160)	27720007	060D0015	0001000A	0003000E	00502772	0007060E	0017000C	00050003	00110050	27720007
(1200)	060F0017	000F0031	00030011	00502772	00070610	00170013	00360003	00110050	27720007	06110017
(1240)	0018001C	00030011	00502772	00070612	0017001B	00340003	00110050	27720007	06130017	0020000A
(1280)	00030011	00502772	00070614	00170024	00360003	00110050	27720007	06150017	00290002	00030011
(1320)	00502772	00070616	0017002D	001B0003	00110050	27720007	06170017	00310014	00030011	00502772
(1360)	00070618	00170034	00160003	00110050	27720007	06190017	0037001F	00030011	00502772	0007061A
(1400)	0017003A	00200003	00110050	27720007	061B0000	0001001A	0003C012	00502772	0007061C	00000005
(1440)	000A0003	00120050	27720007	061D0000	0008002E	00030012	00502772	0007061E	0000000C	002D0003
(1480)	00120050	27720007	061F0000	0011001C	00030012	00502772	00070620	00000015	002A0003	00120050
(1520)	27720007	06210000	00140006	00030012	00502772	00070622	0000001E	001A0003	0012005C	27720007
(1560)	06230000	00220022	00030012	00502772	00070624	00000027	00070003	00120050	27720007	06250000
(1600)	002B002D	00030012	00502772	00070626	0000002F	001C0003	00120050	27720007	06270000	00330011
(1640)	00030012	00502772	00070628	00000035	00320003	00120050	27720007	06290000	00380018	00030012
(1680)	00502772	0007062A	00010000	00070003	00120050	27720007	062B0001	00030026	00030012	00502772
(1720)	0007062C	00010006	00360003	00120050	27720007	062D0001	000A0027	00030012	00502772	0007062E
(1760)	00010005	00340003	00120050	27720007	062F0001	00130009	00030012	00502772	00070630	00010017

D-59749
2/9/78 7/2/78

DUMP OF TAPE DOUTB

INPUT TAPE DOUTB ON TUO
DATA INPUT H9 NF 6 SR 1 1 1 SR 6 1 1 SR 6 LAST 1

FILE 1 RECORD mx 4 LENGTH 8180BYTES

(0)	FFFC0012	4D513238	30303339	39394D48	00C40000	216900AA	A02C1469	11C30B3B	0000C10C	4001001A
(40)	00000008	27120000	000B0025	00070006	000C0050	27160014	0384C0E1	40FFFFFD	00000000	00000000
(80)	BB5126E4	40EAC46F	C0661471	3BBAAE6D	40661471	40EAC46F	271F008E	000A0000	00000001	00090003
(120)	41204433	00000000	00000000	00000000	00000000	0000000A	000E0003	42204433	00000000	00000000
(160)	00000000	00000000	0000000F	001D0003	43204433	00000000	00000000	00000000	0000000C	0000001E
(200)	003F0003	44204433	00000000	00000000	00000000	00000000	00000040	00400003	4C495645	2054494D
(240)	45204433	00000000	00000000	00000001	00090006	41204436	00000000	00000000	00000000	00000000
(280)	0000000A	000E0006	42204436	00000000	00000000	000C0000	00000C00	0000000F	001D0006	43204436
(320)	00000000	00000000	00000000	00000000	0000001E	003F0006	44204436	00000000	00000000	00000000
(360)	00000000	00000040	00400006	4C495645	2054494D	45204436	00000000	00000000	27380004	00000000
(400)	00000000	27720007	0E130017	0006001C	0005000B	00502772	00070E14	0017000A	00000005	000B0050
(440)	27720007	0E150017	000D0018	0005000B	00502772	00070E16	00170010	001D0005	000B0050	27720007
(480)	0E170017	0014000B	0005000B	00502772	00070E18	00170017	00160005	000B0050	27720007	0E190017
(520)	00130004	0005000B	00502772	00070E1D	0017001E	00060005	000B0050	27720007	0E1F0017	0023001B
(560)	0005000B	00502772	00070E20	00170027	00320005	000B0050	27720007	0E210017	002B0008	0005000B
(600)	00502772	00070E22	00170030	002C0005	000B0050	27720007	0E230017	00300015	0005000B	00502772
(640)	00070E24	00170032	00170005	000B0050	27720007	0E250017	00360003	0005000B	00502772	00070E26
(680)	00170038	002D0005	000B0050	27720007	0E270000	0000000A	0005000C	00502772	00070E28	00000003
(720)	00240005	000C0050	27720007	0E290000	00080019	0005000C	00502772	00070E2D	00000011	002E0005
(760)	000C0050	27720007	0E2E0000	00160006	0005000C	00502772	0007CE2F	0000001B	000D0005	000C0050
(800)	27720007	0E300000	001F001D	0005000C	00502772	00070E31	00000023	00240005	000C0050	27720007
(840)	0E320000	00260034	0005000C	00502772	00070E33	00000029	00010005	000C0050	27720007	0E340000
(880)	00200034	0005000C	00502772	00070E35	0000002F	001E0005	000C0050	27720007	0E36000C	00320039
(920)	0005000C	00502772	00070E38	00000036	00260005	000C0050	27720007	0E390000	003B0020	0005000C
(960)	00502772	00070E3A	00010002	002E0005	000C0050	27720007	0E3B0001	0005002D	0005000C	00502772
(1000)	00070E3C	00010008	000B0005	00CC0050	27720007	0E3D0001	000A0023	0005000C	00502772	00070E3E
(1040)	0001000C	00370005	000C0050	27720007	0E3F0001	00100027	0005000C	00502772	00070E42	00070034
(1080)	002A0005	000C0050	27720007	0E430007	00380029	0005000C	00502772	00070E44	0007003B	002E0005
(1120)	000C0050	27720007	0E450008	0003002E	0005000C	00502772	00070E46	00080007	00070005	000C0050
(1160)	27720007	0E470008	000B001F	0005000C	00502772	00070E48	0008000F	00390005	000C0050	27720007
(1200)	0E490008	0014001C	0005000C	00502772	00070E4A	00080019	00200005	000C0050	27720007	0E4B0008
(1240)	001D0020	0005000C	00502772	00070E4C	00080021	001B0005	000C0050	27720007	0E4D0008	00260002
(1280)	0005000C	00502772	00070E4E	0008002A	000F0005	000C0050	27720007	0E4F0008	002E0030	0005000C
(1320)	00502772	00070E50	00080031	000A0005	000C0050	27720007	0E510008	00340032	0005000C	00502772
(1360)	00070E52	00080038	00190005	000C0050	27720007	0E530008	003B0027	0005000C	00502772	00070E54
(1400)	0009003	00170005	000C0050	27720007	0E550009	00060024	0005000C	00502772	00070E56	0009000A
(1440)	00330005	000C0050	27720007	0E5C0010	0008002F	0005000C	00502772	00070E5D	0010000E	00010005
(1480)	000C0050	27720007	0E5E0010	00120000	0005000C	00502772	00070E5F	00100015	000F0005	000C0050
(1520)	27720007	0E600010	0019001D	0005000C	00502772	00070E61	0010001B	00320005	000C0050	27720007
(1560)	0E620010	001F0029	0005000C	00502772	00070E63	00100023	000A0005	000C0050	27720007	0E640010
(1600)	002E0026	0005000C	00502772	00070E65	00100028	002A0005	000C0050	27720007	0E660010	002B0014
(1640)	0005000C	00502772	00070E67	00100030	00050005	000C0050	27720007	0E680010	00340022	0005000C
(1680)	00502772	00070E69	00100039	00100005	000C0050	27720007	0E6A0011	0001003B	0005000C	00502772
(1720)	00070E6B	00110006	000A0005	000C0050	27720007	0E6C0011	000BC033	0005000C	00502772	00070E6D
(1760)	0011000F	000D0005	000C0050	27720007	0E6E0011	0012002F	0005000C	00502772	00070E6F	00110016
(1800)	00290005	000C0050	27720007	0E700011	00180036	0005000C	00502772	00070E71	0011001C	003B0005
(1840)	000C0050	27720007	0E730011	001F0030	0005000C	00502772	0007CE74	0015001E	002E0001	00070050
(1880)	27720007	0E750015	00220030	00010007	00502772	00070E76	00150026	00270001	00070050	27720007
(1920)	0E770015	0029003B	00010007	00502772	00070E78	0015002E	00230001	00070050	27720007	0E790015
(1960)	00320007	00010007	00502772	00070E7A	00150036	00140001	00070050	27720007	0E7B0015	003A0029
(2000)	00010007	00502772	00070E7C	00160001	00350001	00070050	27720007	0E7D0016	0005002E	00010007
(2040)	00502772	00070E83	00160009	00110001	00070050	27720007	0E840016	000A000F	00010007	00502772
(2080)	00070E85	0016000D	00350001	00070050	27720007	0E860016	00110000	00010007	00502772	00070E87
(2120)	00160014	001B0001	00070050	27720007	0E880016	00190002	00010007	00502772	00070E89	0016001B
(2160)	003E0001	00070050	27720007	0E8A0016	002C0006	00010007	00502772	00070E8B	00160023	00330001
(2200)	00070050	27720007	0E8C0016	0027000E	00010007	00502772	00070E8D	0016002B	00100001	00070050
(2240)	27720007	0E8E0016	002D0017	00010007	00502772	00070E8F	00160030	00250001	00070050	27720007
(2280)	0E900016	00330031	0001000[illegible]	[illegible]	[illegible]	00160036	002D0001	00070050	27720007	0E920016

(7600)	000E0050	27720007	0B6A0014	00060004	0004000E	00502772	0007CE6B	0014000C	00290004	000E0050
(7640)	**27720007**	**0B6C0014**	**000C0028**	**0004000E**	**00502772**	**00070B6D**	**0014000F**	**00360004**	**000E0050**	**27720007**
(7680)	0B6E0014	00130017	0004000E	00502772	00070B6F	0014001E	0037C004	0C0E0050	27720007	0B700014
(7720)	001A000B	0004000E	00502772	00070B71	0014001E	0012000C	000EC050	27720007	0B720014	00230001
(7760)	**0004000E**	**00502772**	**00070B73**	**00140027**	**00130004**	**000E0050**	**27720007**	**0B740014**	**002B0025**	**0004000E**
(7800)	00502772	00070B76	0014002F	00260004	000E0050	27720007	0B770014	0033000C	0004000E	00502772
(7840)	00070B78	00140036	002E0004	000E0050	27720007	0B790014	00390037	0004000E	00502772	00070B7A
(7880)	**00150001**	**00040004**	**000E0050**	**27720007**	**0B7B0015**	**00040010**	**0004000E**	**00502772**	**00070B7C**	**00150007**
(7920)	00300004	000E0050	27720007	0B7D0015	000B0005	0004000E	00502772	00070B7E	0015000E	00100004
(7960)	000E0050	27720007	0B7F0015	00100029	0004000E	00502772	00070B80	00150014	00350004	000E0050
(8000)	**27720007**	**0B810015**	**0019001A**	**0004000E**	**00502772**	**00070B82**	**0015001D**	**001F0004**	**000E0050**	**27720007**
(8040)	0B830015	00220017	0004000E	00502772	00070B84	00150025	002E0004	000E0050	27720007	0B850015
(8080)	00290039	0004000E	00502772	00070B86	00120002	00060004	00120050	27720007	0B870012	00050025
(8120)	**00040012**	**00502772**	**00070B88**	**00120009**	**002A0004**	**00120050**	**27720007**	**0B890012**	**000C002E**	**00040012**
(8160)	00502772	00070B8A	00120010	00030004	00120050					

FILE	INPUT RECS.	DATA RECORDS INPUT	MAX. SIZE	READ ERROR SUMMARY PERM	ZERO B	SHORT	UNDEF.	INPUT RETRIES #RECS.	TOTAL#
1	538	538	8180	0	0	0	0	0	0

49 0059 990H

MQ I

FILE 6 RECORD LENGTH 8180BYTES

(0)	FFFD0012	40513439	30303539	39394D48	00040000	1CF7019C	B2C7146A	129A0B10	00000100	4001011A
(40)	**00000008**	**27120000**	**000A0035**	**00030001**	**000D0051**	**27160014**	**0384C0E1**	**4CFFFFFD**	**00000000**	**00000000**
(80)	BB512BE4	40EAC46F	C0661471	3BBAAE6D	40661471	40EAC46F	271FC08E	000A0000	00000001	00090003
(120)	41204433	00000000	00000000	00000000	00000000	0000000A	000E0003	42204433	00000000	00000000
(160)	**000C0000**	**00000000**	**0000000F**	**001D0003**	**43204433**	**00000000**	**00000000**	**00000000**	**00000000**	**0000001E**
(200)	003F0003	44204433	00000000	00000000	00000000	0000004D	0C400003	4C495645	2054494D	
(240)	45204433	00000000	00000000	00000001	00090006	41204436	00000000	00000000	00000000	00000000
(280)	**0000000A**	**000E0006**	**42204436**	**00000000**	**00000000**	**00000000**	**00000000**	**0000000F**	**001D0006**	**43204436**
(320)	00000000	00000000	00000000	00000000	0000001E	003F0006	44204436	00000000	0000000C	00000000
(360)	00000000	00000040	00400006	4C495645	2054494D	45204436	00000000	00000000	27380004	00000000
(400)	**00000000**	**27720007**	**16440003**	**00220019**	**00060001**	**00502772**	**00071645**	**00030025**	**00320006**	**00010050**
(440)	27720007	16470003	0027001C	00060001	00502772	00071648	0003C029	00120006	00010050	27720007
(480)	164B0003	0020000C	00060001	00502772	0007164A	0003002F	0013C006	00010050	27720007	164B0003
(520)	**0033000E**	**00060001**	**00502772**	**0007164C**	**00030036**	**00150006**	**00010050**	**27720007**	**16580003**	**003B0014**
(560)	00060001	00502772	00071661	00040002	002C0006	00010050	27720007	16620004	00060009	00060001
(600)	00502772	00071663	00040008	00290006	00010050	27720007	1664C004	000B0010	00060001	00502772
(640)	0007166E	0004000F	002A0006	00010050	27720007	166F0004	0014000A	00060001	00502772	00071670
(680)	00040018	00220006	00010050	27720007	16710004	001C0017	00060001	00502772	00071672	00040020
(720)	00340006	00010050	27720007	16730004	0023001D	00060001	00502772	00071674	00040026	00320006
(760)	**00010050**	**27720007**	**16750004**	**002A0015**	**00060001**	**00502772**	**00071676**	**000A0005**	**00030006**	**00010050**
(800)	27720007	1677000A	00380029	00060001	00502772	00071678	000A000B	00140006	00010050	27720007
(840)	1679000A	000E0037	00060001	00502772	00071682	000A0014	00010006	00010050	27720007	1683000A
(880)	**0C16000F**	**00060001**	**00502772**	**00071684**	**000A0019**	**00380006**	**0001C050**	**27720007**	**1685000A**	**001C0037**
(920)	00060001	00502772	00071686	000A0020	000F0006	00010050	27720007	1687000A	00230032	00060001
(960)	00502772	00071688	000A0027	00040006	00010050	27720007	1689000A	002B0004	00060001	00502772
(1000)	**0007168A**	**000A002D**	**00240006**	**00010050**	**27720007**	**168B000A**	**00310025**	**00060001**	**00502772**	**0007168C**
(1040)	000A0036	00080006	00010050	27720007	168D000A	0039001C	00060001	00502772	00071693	000B0003
(1080)	00020006	00010050	27720007	1694000B	00050023	00060001	00502772	00071695	000B0008	003A0006
(1120)	**00010050**	**27720007**	**1696000B**	**000B0021**	**00060001**	**00502772**	**0007169C**	**000B0010**	**00070006**	**00010050**
(1160)	27720007	169D000B	00130009	00060001	00502772	0007169E	000B0017	002E0006	00010050	27720007
(1200)	169F000B	001A0011	00060001	00502772	000716A0	000B001E	0022C006	00010050	27720007	16A1000B
(1240)	**00210030**	**00060001**	**00502772**	**000716A2**	**000B0023**	**00310006**	**00010050**	**27720007**	**16A3000B**	**0027001B**
(1280)	00060001	00502772	000716A4	000B002A	002B0006	00010050	27720007	16A5000B	002E0006	00060001
(1320)	00502772	000716A6	00080031	00200006	00010050	27720007	16AD0013	00020036	00C2000E	00502772
(1360)	000716AE	00130006	00360002	000E0050	27720007	16AF0013	000A0022	0002000E	00502772	000716B0
(1400)	**0013000C**	**00230002**	**000E0050**	**27720007**	**16B10013**	**00100027**	**0002000E**	**00502772**	**000716B2**	**00130012**
(1440)	00380002	000E0050	27720007	16B30013	00150010	0002000E	00502772	000716B4	00130018	00040002
(1480)	**000E0050**	**27720007**	**16B50013**	**001B0008**	**0002000E**	**00502772**	**000716B6**	**0013001E**	**00160002**	**000E0050**
(1520)	27720007	16BB0013	00220011	0002000E	00502772	000716BC	00130025	001D0002	000E0050	27720007
(1560)	16BD0013	00290025	0002000E	00502772	000716BE	0013002C	00280002	000E0050	27720007	16BF0013
(1600)	**00300021**	**0002000E**	**00502772**	**000716C0**	**00130033**	**001C0002**	**000EC050**	**27720007**	**16C10013**	**0035002B**
(1640)	0002000E	00502772	000716C3	00130039	00290002	000E0050	27720007	16C20014	0002002C	0002000E
(1680)	00502772	000716D3	00140005	003A0002	000E0050	27720007	16D40014	0008002D	0002000E	00502772
(1720)	**000716D5**	**0014000A**	**00290002**	**000E0050**	**27720007**	**16DC0017**	**002C001B**	**0002000E**	**00502772**	**000716DD**
(1760)	0017002F	001D0002	000E0050	27720007	16DE0017	00330006	0002C00E	00502772	000716DF	00170036

DUMP OF TAPE DOUTC

D-59750
8/14/78 - 1/8/79

INPUT TAPE DOUTC ON TU1
DATA INPUT H9 NF 6 FL 1 1 0 SR 6 1 1 SR 6 LAST 1

FILE 1 RECORD MQ 57 1 LENGTH 0069 8180BYTES 99 MQ

(0)	FFFD0012	4D513537	30303639	39394D48	00C400C0	1FCC00FA	77FD146A	11D10ACF	0000C10C	4001001A
(40)	00000008	27120000	00090030	003B0006	001A0050	27160014	0384C0E1	40FFFFFD	00000000	00000000
(80)	BB512BE4	40EAC46F	C0661471	3BBAAE6D	40661471	40EAC46F	271F008E	000A0000	00000001	00090003
(120)	41204433	00000000	00000000	00000000	00000000	0000000A	000E0003	42204433	00000000	00000000
(160)	00000000	00000000	0000000F	001D0003	43204433	00000000	00000000	00000000	0000000C	0000001E
(200)	003F0003	44204433	00000000	00000000	00000000	00000000	00000040	00400003	4C495645	2054494D
(240)	45204433	00000000	00000000	00000001	00090006	41204436	00000000	00000000	00000000	00000000
(280)	0000000A	000E0006	42204436	00000000	000000C0	00000000	00000000	0000000F	001D0006	43204436
(320)	00000000	00000000	00000000	00000000	0000001E	003F0006	44204436	00000000	00000000	00000000
(360)	00000000	00000040	00400006	4C495645	2054494D	45204436	00000000	00000000	27380004	00000000
(400)	00000000	27720007	16440003	00220019	00060001	00502772	00071645	00030025	00320006	00010050
(440)	27720007	16470003	0027001C	00060001	00502772	00071648	00030029	00120006	00010050	27720007
(480)	16490003	0025000C	00060001	00502772	0007164A	0003002F	0013000E	00010050	27720007	164B0003
(520)	0033000E	00060001	00502772	0007164C	00030036	00150006	00010050	27720007	16580003	003B0014
(560)	00060001	00502772	00071661	00040002	002C0006	00010050	2772C007	16620004	00060009	00060001
(600)	00502772	00071663	00040008	00290006	00010050	27720007	16640004	000B0010	00060001	00502772
(640)	0007166E	0004000F	002A0006	00010050	27720007	166F0004	0014000A	00060001	00502772	00071670
(680)	00040018	00220006	00010050	27720007	16710004	001C0017	00060001	00502772	00071672	00040020
(720)	00340006	00010050	27720007	16730004	0023001D	00060001	00502772	00071674	0004002E	00320006
(760)	00010050	27720007	16750004	002A0015	00060001	00502772	00071676	000A0005	00030006	00010050
(800)	27720007	1677000A	00080029	00060001	00502772	00071678	000A000B	00140006	00010050	27720007
(840)	1679000A	000E0037	00060001	00502772	00071682	000A0014	0001C006	00010050	27720007	1683000A
(880)	0016000F	00060001	00502772	00071684	000A0019	00380006	0001C050	27720007	1685000A	001C0037
(920)	00060001	00502772	00071686	000A0020	000F0006	00010050	27720007	1687000A	00230032	00060001
(960)	00502772	00071688	000A0027	00040008	00010050	27720007	1689000A	002B0004	00060001	00502772
(1000)	0007168A	000A002D	00240006	00010050	27720007	168B000A	0031C025	00060001	00502772	0007168C
(1040)	000A0036	00080006	00010050	27720007	168D000A	0039001C	00060001	00502772	00071693	000B0003
(1080)	00020006	00010050	27720007	1694000B	00050023	00060001	00502772	00071695	000B0008	003A0006
(1120)	00010050	27720007	1696000B	000B0021	00060001	00502772	0007169C	000B0010	00070006	00010050
(1160)	27720007	169D000B	00130009	00060001	00502772	0007169E	000B0017	002E0006	00010050	27720007
(1200)	169F000B	001A0011	00060001	00502772	000716A0	000B001E	00220006	00010050	27720007	16A1000B
(1240)	00210030	00060001	00502772	000716A2	000B0023	00310006	00010050	27720007	16A3000B	0027001B
(1280)	00060001	00502772	000716A4	000B002A	002B0006	00010050	2772C007	16A5000B	002E0006	00060001
(1320)	00502772	000716A6	00080031	00200006	00010050	27720007	16AD0013	00020036	002000E	00502772
(1360)	000716A8	00130006	00360002	000E0050	27720007	16AF0013	000A0022	0002000E	00502772	000716B0
(1400)	00130006	00230002	000E0050	27720007	16B10013	00100027	0002000E	00502772	000716B2	00130012
(1440)	00380002	000E0050	27720007	16B30013	00150010	0002000E	00502772	000716B4	00130018	00040002
(1480)	000E0050	27720007	16B50013	001B0008	0002000E	00502772	000716B6	0013001E	00160002	000E0050
(1520)	27720007	16BB0013	00220011	0002000E	00502772	000716BC	00130025	001D0002	000E0050	27720007
(1560)	16BD0013	00290025	0002000E	00502772	000716BE	0013002C	0028C002	000E0050	2772C007	16BF0013
(1600)	00300021	0002000E	00502772	000716C0	00130033	001C0002	000E0050	27720007	16C10013	0035002B
(1640)	0002000E	00502772	000716C3	00130039	00290002	000E0050	27720007	16D20014	0002002C	0002000E
(1680)	00502772	000716D3	00140005	003A0002	000E0050	27720007	16D40014	0008002D	0002000E	00502772
(1720)	000716D5	0014000A	00290002	000E0050	27720007	16DC0017	002C001B	0002000E	00502772	000716DD
(1760)	0017002F	001D0002	000E0050	27720007	16DE0017	00330006	0002000E	00502772	000716DF	00170036
(1800)	00180002	000E0050	27720007	16E00017	0038001B	0002000E	00502772	000716E1	00000000	00070002
(1840)	000F0050	27720007	16E20000	0003001E	0002000F	00502772	000716E3	00000005	002C0002	000F0050
(1880)	27720007	16E40000	0009000C	0002000F	00502772	000716E5	0000000B	00330002	000F0050	27720007
(1920)	16E60000	0011000C	0002000F	00502772	000716EE	00000014	00380002	000F0050	27720007	16EF0000
(1960)	0017001E	0002000F	00502772	000716F0	0000001A	00110002	000F0050	27720007	16F10000	001E0016
(2000)	0002000F	00502772	000716F2	00000021	000C0002	000F0050	27720007	16F30000	00230029	0002000F
(2040)	00502772	000716FE	00000028	002F0002	000F0050	27720007	16FF0000	002C0007	0002000F	00502772
(2080)	00071700	0000002F	00220002	000F0050	27720007	17010000	00310017	0002000F	00502772	00071702
(2120)	00C00034	001B0002	000F0050	27720007	17030000	0037002C	0002C00F	00502772	00071704	0000003B
(2160)	001A0002	000F0050	27720007	17050001	0003003B	0002000F	00502772	00071707	00010008	00160002
(2200)	000F0050	27720007	17080001	000C0030	0002000F	00502772	00071709	00010010	000E0002	000F0050
(2240)	27720007	170A0001	0014001C	0002000F	00502772	0007170B	00010018	000F0002	000F0050	27720007
(2280)	171F0003	000C0011	0002000F	00502772	00071720	00030011	0010C002	000F0050	27720007	17210003

DUMP OF TAPE DINC

INPUT TAPE DINC ON TU0
DATA INPUT F9 NF 4 SR 4 1 1

FILE	INPUT RECS.	DATA RECORDS INPUT	MAX. SIZE	READ ERROR SUMMARY PERM	ZERO B	SHORT	UNDEF.	INPUT RETRIES #RECS.	TOTAL#
1	512	512	8180	0	0	0	0	0	0

mQ66 00799m

FILE 4 RECORD 1 LENGTH 8180BYTES

(0)	FFFD0012	4D513636	30303739	39394D48	00040000	1FDE00B2	7C9214B5	12A10B18	00000100	4001041A
(40)	00000008	27120000	00080000	002C0001	00140051	27160014	038400E1	40FFFFFD	00000000	00000000
(80)	BB512BE4	40EAC46F	C0661471	3BBAAE6D	40661471	40EAC46F	271F008E	000A0000	00000001	00090003
(120)	41204433	00000000	00000000	00000000	00000000	0000000A	000E0003	42204433	00000000	00000000
(160)	00000000	00000000	0000000F	001D0003	43204433	00000000	00000000	00000000	00000000	0000001E
(200)	003F0003	44204433	00000000	00000000	00000000	00000000	00000040	00400003	4C495645	2054494D
(240)	45204433	00000000	00000000	00000001	00090006	41204436	00000000	00000000	00000000	00000000
(280)	0000000A	000E0006	42204436	00000000	00000000	00000000	00000000	0000000F	001D0006	43204436
(320)	00000000	00000000	00000000	00000000	0000001E	003F0006	44204436	00000000	00000000	00000000
(360)	00000000	00000040	00400006	4C495645	2054494D	45204436	00000000	00000000	27380004	00000000
(400)	00000000	27720007	1CF00005	0006001F	00060014	00502772	00071CF1	0005000A	00370006	00140050
(440)	27720007	1CFC0005	000F001D	00060014	00502772	00071CFD	00050011	003B0006	00140050	27720007
(480)	1CFE0005	00150033	00060014	00502772	00071CFF	00050019	002F0006	00140050	27720007	1D000005
(520)	001C0011	00060014	00502772	00071D02	00050020	00130006	00140050	27720007	1D030005	0024001C
(560)	00060014	00502772	00071D04	00050028	00360006	00140050	27720007	1D050005	002A0035	00060014
(600)	00502772	00071D0D	0005002F	0010000E	00140050	27720007	1D0E0005	00330020	00060014	00502772
(640)	00071D0F	00050036	000B0006	00140050	27720007	1D100005	003A0001	00060014	00502772	00071D11
(680)	00060002	000A0006	00140050	27720007	1D120006	00040024	00060014	00502772	00071D13	00060008
(720)	00320006	00140050	27720007	1D140006	000B0000	00060014	00502772	00071D1F	000F002D	00300006
(760)	00140050	27720007	1D20000F	00320004	00060014	00502772	00071D21	000F0035	003B0006	00140050
(800)	27720007	1D220006	0039003B	00060014	00502772	00071D23	00100002	00010006	00140050	27720007
(840)	1D2E0010	00060002	00060014	00502772	00071D2F	0010000A	00330006	00140050	27720007	1D300010
(880)	000F001D	00060014	00502772	00071D31	00100012	002C0006	00140050	27720007	1D320010	0015001E
(920)	00060014	00502772	00071D3C	00100019	00270006	00140050	27720007	1D3E0010	001D0014	00060014
(960)	00502772	00071D3F	00100020	002B0006	00140050	27720007	1D400010	00240011	00060014	00502772
(1000)	00071D41	00100027	002E0006	00140050	27720007	1D420010	002B0013	00060014	00502772	00071D43
(1040)	0010002E	00350006	00140050	27720007	1D440010	00320000	00060014	00502772	00071D5B	0015001A
(1080)	00320006	00140050	27720007	1D5C0015	001E001B	00060014	00502772	00071D5D	00150022	00130006
(1120)	00140050	27720007	1D5E0015	00260008	00060014	00502772	00071D5F	00150029	00290006	00140050
(1160)	27720007	1D600015	002C0034	00060014	00502772	00071D61	00150030	00140006	00140050	27720007
(1200)	1D620015	00340000	00060014	00502772	00071D6E	00150039	000B0006	00140050	27720007	1D6F0015
(1240)	003A0001	00060014	00502772	00071D70	00160001	00140006	00140050	27720007	1D710016	00040031
(1280)	00060014	00502772	00071D7A	00160009	00370006	00140050	27720007	1D7B0016	000C0032	00060014
(1320)	00502772	00071D7C	0016000E	00330006	00140050	27720007	1D7E0002	000E0013	00060015	00502772
(1360)	00071D7F	00020011	001D0006	00150050	27720007	1D800002	0014C020	00060015	00502772	00071D81
(1400)	00020017	00110006	00150050	27720007	1D820002	001A002E	00060015	00502772	00071D88	0002001E
(1440)	00150006	00150050	27720007	1D8A0002	0020002E	00060015	00502772	00071D83	00020024	002C0006
(1480)	00150050	27720007	1D8C0002	00280024	00060015	00502772	00071D8D	0002002D	00030006	00150050
(1520)	27720007	1D930002	00310034	00060015	00502772	00071D94	0002C034	00210006	00150050	27720007
(1560)	1D950002	00380000	00060015	00502772	00071D96	0002003B	002A0006	00150050	27720007	1D970003
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(1640)	00060015	00502772	00071D9A	0003000D	000C0006	00150050	27720007	1D9B0003	00110002	00060015
(1680)	00502772	00071D9C	00030015	00180006	00150050	27720007	1D9D0003	0018000F	00060015	00502772
(1720)	00071DFB	00070017	00210006	00150050	27720007	1E090007	001D000F	00060015	00502772	00071E0F
(1760)	0007001F	00330006	00150050	27720007	1E100007	0023000D	00060015	00502772	00071E11	00070027
(1800)	0020006	00150050	27720007	1E120007	002B0022	00060015	00502772	00071E25	000B0035	00360006
(1840)	00150050	27720007	1E26009B	0037001B	00060015	00502772	00071E27	000B003A	003A0006	00150050
(1880)	27720007	1E280000	00010026	00060015	00502772	00071E29	000C0005	00110006	00150050	27720007
(1920)	1E370000	0004002E	00060015	00502772	00071E38	000C000D	0007C006	00150050	27720007	1E39000C
(1960)	00100014	00060015	00502772	00071E3A	000C0013	00070006	00150050	27720007	1E3B000C	00160037
(2000)	00060015	00502772	00071E3C	000C001A	000E0006	00150050	27720007	1E480010	001E0005	00060015
(2040)	00502772	00071E49	00100020	00300006	00150050	27720007	1E4A0010	0023001E	00060015	00502772
(2080)	00071E4B	00100026	001C0006	00150050	27720007	1E4C0010	0028003B	00060015	00502772	00071E54
(2120)	0010002D	00070006	00150050	27720007	1E550010	0031000E	00060015	00502772	00071E56	00100035

D-59751
8/21/77 - 1/8/79

DUMP OF TAPE DOUTD

INPUT TAPE DOUTD ON TL0
DATA INPUT HS NF 16 FL 1 1 0 SR 16 1 1

N150 1499 A FB

FILE 1 RECORD 1 LENGTH 8190BYTES

(0)	FFFD0012	4E313830	31343939	41004642	00040000	00230050	102D1536	15341301	00000100	4001001A
(40)	421EE796	00000000	C080E34E	C0517640	4018AE21	4038FFAC	C029E91D	C018C558	BF6A7C33	C012FFA7
(80)	42298005	00000000	3F74F055	C11196C5	C0879CB3	C018EC19	401D916F	401576F2	3FFD0333	C01AB3F7
(120)	421ED545	00000000	C02D350A	3F57B3BA	BED9E599	3D316211	C04766B0	C05A74BB	C02FA861	3FF88A77
(160)	4229D02C	00000000	C026B647	C0A541CC	C0152D7A	C07D4997	C055406C	3F27C8BA	BF14C099	403CEE4C
(200)	421F647D	00000000	401A9F7C	C0414DC5	C02BBB08	401D775B	3FF78891	404ED858	401059AC	C017F774
(240)	422A65B6	00000000	40303B3E	C0A79B3B	C0A698BB	C0A017AA	405438E5	40FDC688	40967188	C02BADDE
(280)	421FA5F6	00000000	3F3E88F7	C0120E18	3FFD62B3	401F9DB0	40142B47	3F53B5BC	4038A328	3F174D05
(320)	422A6A6B	00000000	C02A239D	C0DBAB3B	C04D5D42	C0733C43	C01F0BBA	407C85F7	4065BAE1	404AAC96
(360)	421FA6A1	00000000	C0573FFE	C05A9131	406638C5	C02AEFAE	C05DEBF6	C032B4AB	C030622D	403A5496
(400)	4229C0B3	00000000	C04D8871	C1102484	C05EB29C	C0C2FC88	C06C00E5	40829CA7	4064087F	40555D03
(440)	4220155C	00000000	C047F1E4	4058C37E	40275E73	C07B582A	C052CF2A	401835E6	C034728B	C024544C
(480)	422B37C5	00000000	C043BC41	C067B97F	40132DFE	C06514D5	401EDFB3	4042E3A5	404EA542	C0DA3108
(520)	421F902A	00000000	C047C7EB	C02E9856	C085E869	C036B80B	C05A195B	C029827E	406045C3	4032B21C
(560)	422A4C4D	00000000	C04099F4	C0ABCC22	C0B8C3F7	C05CC6EE	C05B4D45	40492860	409CCCCC	404489D9
(600)	42200992	00000000	3F3DC6D4	C0128311	C049CA92	3F8291DC	C046C60F	4033AD2C	403A2CAA	C04D7363
(640)	422B190E	00000000	C05D7936	C0F34844	C0A7D9F7	C0C1A177	C0414DD1	4091A7A2	405B7E1A	C0155683
(680)	421F7FDB	00000000	C058BA49	C0462D76	C05839D5	BFCF2633	C03C6958	C0149CA3	C0139FAD	C039FD68
(720)	422B01FE	00000000	C02E72A0	C01B50F9	C0F1442A	C04B7981	404851AC	403CBA12	402DC5FA	BFA0E188
(760)	421FD799	00000000	C026B78C	C0301595	C043689A	C0100974	BFEEC35D	407F44F4	BF3DEA63	40621CBB
(800)	422B8649	00000000	C0ED202A	C0350519	C0CDB7F7	C0EE0719	C048542E	40BEF044	C019457B	403CB6CC
(840)	421E424C	00000000	3F7344F7	BFA523DD	40280163	C09A6119	C02DACA1	C02A1D79	C02A6882	404C4A2B
(880)	422A6F72	00000000	C0882ADD	C0838535	C0702C59	C09D7222	C08B9591	4095EB22	4080AF6F	408F46EE
(920)	421FB33D	00000000	C01864DB	40203B48	C039D7FF	C040A844	C0602C7D	405C3F14	C02E0D67	BF23CDBD
(960)	422A2752	00000000	C08C3E1	CC71924E	C045BCFE	C08A1908	C016460B	404A531C	4038AFB7	BF5D17AE
(1000)	421F6E7C	00000000	C05A1B00	C03CC740	C0204367	C0162D7D	40332DB7	402036ED	40255F47	3F856B37
(1040)	422A857D	00000000	C0439063	C080CBB4	C04D11CE	BEBA5722	4043CD7D	BFA72C5D	C014A412	3F3D1DFB
(1080)	421EA171	00000000	C0449D7B	C068C5DD	C0728229	C026AB12	401CD663	405E6AA4	C03676C4	404C3BFA
(1120)	422B3B1B	00000000	4014EFEC	C06409B9	C0EFF16E	C0D20FDD	4020D843	4061BABD	C051F69D	3EDEA7AA
(1160)	421FDF72	00000000	3F9087D5	C038F2C8	C073D678	3F98A2D5	C06D53A5	403909B0	40375D0A	4018536B
(1200)	422AB5AC	00000000	C06B3535	C07BF668	C08C9666	3F596FEC	C091C9A2	C01AC7D6	401EA0D2	C0197CF1
(1240)	421FC17C	00000000	C05DCB00	4027F1AA	C051A9D1	C023FFFC	C04FAA65	C0239E62	C03F3BF9	4044BE06
(1280)	422A4DA3	00000000	C048B964	C063D9B5	C0644611	C010655D	404FBDDC	4041DA28	C03B8861	40352817
(1320)	421F9C28	00000000	C0111ECC	BFD0AAC4	C0915EF7	C021A720	C0AC4DBB	C0465457	BF3E2E40	C0312512
(1360)	422A7470	00000000	402E7374	C0C7224C	C113ECDD	3EF3895D	BF7AAE33	406854C6	3FE1F26E	C037E30F
(1400)	42201269	00000000	C0420EBE	C039A0E0	C048545E	C016A049	C05FA702	BFD152CC	40793F2D	405399B2
(1440)	422A9732	00000000	4029EEE6	3F689D76	C019ECA2	C04753E5	C0C7C8AA	C035D715	401387F7	4015D3B2
(1480)	421FC286	00000000	3FCD86AA	BFD38E77	BF3E97AB	C021DFE1	C0182341	C023CC80	405490A4	40120F7D
(1520)	422B5C93	00000000	C04BFA24	C0219711	C01B87C1	401E07B4	C0725C3C	402106E4	40A073D5	C0243161
(1560)	421FD88A	00000000	C04E9A26	C086876B	C05211AD	C020BBC4	C0B6534C	406C08EA	401A6EF7	405AD8B1
(1600)	422B2D5A	00000000	BFCFF380	C01B899E	C060D892	C0149EEA	C03B6FBC	40A7095D	3E6FBAAA	C028C68F
(1640)	421EDED9	00000000	C0340B8C	40136D31	4034B0B8	C056F4F8	C0360604	C0227405	C016EECF	C0284752
(1680)	422A078C	00000000	403DE309	C039E4EE	C038554C	C0489F53	3F9B7ADD	C056DE1D	C01E02E9	C0182F9A
(1720)	421EDBE9	00000000	C033F689	C019FD6B	C0461D87	C05BDBE0	402A0AB9	4024EEDB	40112710	C02753E4
(1760)	422769E9	00000000	3FF66811	C0874930	C07CCF33	C09BB888	C0379C8B	405BB8A0	4013A4E5	4061A924
(1800)	421A831B	00000000	BFE18344	C017B440	C05BFE63	C021F56E	C069E74B	4026A8C5	403B7F7B	BF957600
(1840)	421FF715	00000000	404F217A	BF78B1D0	C0753557	C05EE1E9	C0149764	401A17F3	C01DC086	4018A69D
(1880)	421684C6	00000000	C06FB59B	BFD2BD77	C0203E50	C027BC2C	40407DF1	3F405EAE	C03079A4	3FA56DDD
(1920)	422043FF	00000000	C03CA278	C04EB819	C028A9E6	BF2890C5	3F4C38AA	401C5743	C019B065	4061DEFD
(1960)	42169848	00000000	C02B2559	3F9B756E	C03055CA	C0363BC9	C031A287	C02D521D	BF4EB421	40293EBD
(2000)	42205161	00000000	C052E460	BF3A36BD	C04B8D86	3FE2593B	C036191C	4026796B	BFEB3CCC	C03CE42A
(2040)	42166823	00000000	BF461A5B	3E734C97	C04F2DE9	C03EBAE6	C0329FE1	BFD47980	C042CD23	BFD51291
(2080)	42204F23	00000000	C015E8CD	401F4A3E	C07B85CC	C070A3EB	401D64C2	404AB306	40323D47	403B810A
(2120)	421673BE	00000000	4012E573	C03A1F98	C0337338	C03086FB	C025577E	C01A56ED	BFF5FEEE	C0172BEE
(2160)	422CA92D	00000000	C0854205	C01B2E8A	C0400308	BF23AF80	C01CE8D1	3F2618AC	40120D38	409B4F66
(2200)	4216DB20	00000000	C014FC13	BFBA864C	C0236405	C0429862	C0136C2E	BF3E0DF7	C0173B64	BF2E0971
(2240)	42204EF1	00000000	C032013A	C0355886	C068C134	C057148B	C02BC3EA	40228609	4027DC27	BF8EEFD5
(2280)	42163D05	00000000	402FF289	3ED0052A	C01AC075	C0353FAB	C029DEC2	C018A03E	C01A51E8	3F15D61C

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( 7600)  41156666  413243F6  42394B88  3F477D19  43166199  415851E8  42993333  415FBE97  C04FB5B8  412BDE3C
( 7640)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
( 7680)  41156666  413243F6  42394B88  3F477D19  43166199  415851E8  42993333  415FBE97  C04FB5B8  412BDE3C
( 7720)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
( 7760)  41156666  413243F6  42394B88  3F477D19  43166199  415851E8  42993333  415FBE97  C04FB5B8  412BDE3C
( 7800)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
( 7840)  41156666  413243F6  42394B88  3F477D19  43166199  415851E8  42993333  415FBE97  C04FB5B8  412BDE3C
( 7880)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
( 7920)  41156666  413243F6  42394B88  3F477D19  43166199  415851E8  42993333  415FBE97  C04FB5B8  412BDE3C
( 7960)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
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( 8040)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
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( 8120)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
( 8160)  41156666  413243F6  42394B88  3F477D19  43166199  415851E8  42993333  415F
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FILE	INPUT RECS.	DATA RECORDS INPUT	MAX. SIZE	READ ERROR SUMMARY PERM	ZERO R	SHORT	UNDEF.	INPUT RETRIES #RECS.	TOTAL#
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60 0799 94FB

FILE 16 RECORD N6 1 LENGTH 8190BYTES

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(  120)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
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(  200)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
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(  280)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
(  320)  41156666  413243F6  42394B88  3F477D19  43166199  41E251E1  42B39999  415FBE97  C04FB5B8  414496FE
(  360)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
(  400)  41156666  413243F6  42394B88  3F477D19  43166199  41E251E1  42B39999  415FBE97  C04FB5B8  414496FE
(  440)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
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(  520)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
(  560)  41156666  413243F6  42394B88  3F477D19  43166199  41E251E1  42B39999  415FBE97  C04FB5B8  414496FE
(  600)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
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(  680)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
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(  760)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
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(  920)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
(  960)  41156666  413243F6  42394B88  3F477D19  43166199  41E251E1  42B39999  415FBE97  C04FB5B8  414496FE
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( 1040)  41156666  413243F6  42394B88  3F477D19  43166199  41E251E1  42B39999  415FBE97  C04FB5B8  414496FE
( 1080)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
( 1120)  41156666  413243F6  42394B88  3F477D19  43166199  41E251E1  42B39999  415FBE97  C04FB5B8  414496FE
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( 1240)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
( 1280)  41156666  413243F6  42394B88  3F477D19  43166199  41E251E1  42B39999  415FBE97  C04FB5B8  414496FE
( 1320)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
( 1360)  41156666  413243F6  42394B88  3F477D19  43166199  41E251E1  42B39999  415FBE97  C04FB5B8  414496FE
( 1400)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
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( 1480)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
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( 1640)  42240180  00000000  C11F00D9  C112DABB  C1220FA0  4110FFCD  401DBEB0  40213402  C0DEEEAA  BF533321
( 1680)  42227F4D  00000000  C04DE5A5  C066C0DD  C0BFA844  C111E086  C02A89F2  C116FA19  C115CCE6  C1224723
( 1720)  4220BF09  00000000  C1150884  C1156EBA  C07BF5C5  C039ADE5  C09BC708  40447DE5  3F1B089D  40BA595D
( 1760)  421FD99A  00000000  4042E9C8  C022D7D6  4067ED86  C1109B16  C0BC8411  C0DE8EF7  C05A262B  C1107C53
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