

NIMBUS 4

Earth Sc. #463

COMPRESSED OZONE PROFILE
DAILY ZONAL MEANS (DZP) GEOD COOR.
DAILY ZONAL MEANS (DZPM) GEOM COOR.
BUV DETAILED PROFILE TAPE (DPFL)

70-025A-05G

70-025A-05J

70-025A-05K

70-025A-05L

NO NEW I.D.'s

X

Table of Contents

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

1. INTRODUCTION:

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 This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system.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

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

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

2. ERRATA/CHANGE LOG:

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

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

Version	Date	Person	Page	Description of Change
01				
02				

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

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

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

4. CATALOG MATERIALS:

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

- b. Core Catalog Materials

REQ. AGENTBER
BERRAND NO.V0037
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RWP

NIMBUS 4

COMPRESSED OZONE PROFILE

DAILY ZONAL MEANS (DZP)

DAILY ZONAL MEANS (DZPM)

BUV DETAILED PROFILE TAPE (DPFL)

70-025A-05G

70-025A-05J

70-025A-05K

70-025A-05L

This Compressed Ozone Profile (CPFL) tapes contain one or more years of data. There is 7 years of data per tape for each of the Daily Zonal Means data sets (DZP GEOD Coord. & Dzpm GEOM Coord.). There are 37 BUV Detailed Profile (DPFL) data tapes each covering one month. All four data sets are 9 track, 1600 BPI, binary data non-labeled tapes. The DPFL tapes have EBCDIC header file, CPFL, DZP & DZPM do not. The time spans, number of files, 'D' numbers and 'C' numbers are on the following pages.

70-025A-05G

<u>D#</u>	<u>C#</u>	<u># OF FILES</u>	<u>TIME SPAN</u>
D-40921	C-21046	9	04/10/70 - 12/31/70
D-40922	C-21047	12	01/01/71 - 12/31/71
D-40923	C-21048	7	01/01/72 - 12/01/72
D-40924	C-21049	9	01/19/73 - 05/05/77

70-025A-05J

D-42971	C-21617	112	04/10/70 - 05/06/77
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70-025A-05K

D-42972	C-21618	112	04/10/70 - 05/06/77
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<u>D#</u>	<u>C#</u>	<u>FILES</u>	<u>TIME SPAN</u>
D-42973	C-21579	242	04/10/70 - 05/01/70
D-42974	C-21580	373	05/01/70 - 06/01/70
D-42975	C-21581	355	06/01/70 - 07/01/70
D-42976	C-21582	359	07/01/70 - 07/31/70
D-42977	C-21583	366	08/01/70 - 08/31/70
D-42978	C-21584	354	09/01/70 - 10/01/70
D-42979	C-21585	365	10/01/70 - 10/31/70
D-42980	C-21586	361	11/01/70 - 11/30/70
D-42981	C-21587	369	12/01/70 - 12/31/70
D-42982	C-21588	360	01/01/71 - 02/01/71
D-42983	C-21589	330	02/01/71 - 03/01/71
D-42984	C-21590	354	03/01/71 - 04/01/71
D-42985	C-21591	191	04/01/71 - 04/30/71
D-42986	C-21592	271	05/01/71 - 05/31/71
D-42987	C-21593	282	06/01/71 - 06/30/71
D-42988	C-21594	362	07/01/71 - 08/01/71
D-42989	C-21595	354	08/01/71 - 08/31/71
D-42990	C-21596	231	09/01/71 - 09/30/71
D-42991	C-21597	397	10/01/71 - 10/31/71
D-42992	C-21598	369	11/01/71 - 11/30/71
D-42993	C-21599	347	12/01/71 - 12/31/71
D-42994	C-21600	365	01/01/72 - 01/31/72
D-42995	C-21601	336	02/01/71 - 02/29/71
D-42996	C-21602	329	03/01/72 - 03/30/72
D-42997	C-21603	377	04/01/72 - 04/30/72
D-42998	C-21604	380	05/01/72 - 05/31/72
D-42999	C-21605	325	06/01/72 - 06/30/72

<u>D#</u>	<u>C#</u>	<u>FILES</u>	<u>TIME SPAN</u>
D-43000	C-21606	512	07/01/72 - 11/30/72
D-43001	C-21607	247	01/19/73 - 06/30/73
D-43002	C-21608	344	07/01/73 - 12/08/73
D-43003	C-21609	250	01/11/74 - 06/06/74
D-43004	C-21610	321	07/09/74 - 12/31/74
D-43005	C-21611	344	01/01/75 - 06/01/75
D-43006	C-21612	277	08/10/75 - 12/31/75
D-43007	C-21613	316	01/01/76 - 06/10/76
D-43008	C-21614	193	08/24/76 - 12/31/76
D-43009	C-21615	254	01/01/77 - 05/05/77

TAPE FORMATS AND DESCRIPTIONS TO ACCOMPANY THE
OZONE PROFILE TAPES (DPFL AND CPFL)
FOR THE NIMBUS-4 BACKSCATTER ULTRAVIOLET EXPERIMENT

OZONE PROCESSING TEAM

JULY 1980

GODDARD SPACE FLIGHT CENTER
GREENBELT, MD

CAUTION: The use of this data to determine long term ozone trends without a thorough understanding of the issues discussed in the Nimbus 4 BUUV Users Guide can lead to erroneous conclusions.

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TABLE OF CONTENTS

PAGE

Section 1 - Introduction.	1
Section 2 - Detailed Profiles	3
2.1 Tape Structure.	3
2.2 Data Control Block.	3
2.3 Tape Record Formats	3
Section 3 - Compressed Profiles	14
3.1 Tape Structure.	14
3.2 Data Control Block.	14
3.3 Tape Record Formats	14
Section 4 - Daily Zonal Means	18
4.1 Tape Structure.	18
4.2 Data Control Block.	18
4.3 Tape Record Formats	18
Section 5 - Tape Catalog.	20
APPENDIX A - Dark Current Correction.	24
APPENDIX B - Program to Read CPFL Tape.	26

LIST OF TABLES

PAGE

Table 2.1	Header File of DPFL Tape.	4
Table 2.2	Header Record of DPFL Tape.	5
Table 2.3	Data Record of DPFL Tape.	6
Table 2.4	Trailer Record of DPFL Tape	12
Table 2.5	Trailer File of DPFL Tape	13
Table 3.1	Data Record of CPFL Tape.	15
Table 4.1	Data Record of DZP/DZPM Tapes	19
Table 5.1	Tape Catalog for Profile Tapes.	21
Table 5.2	Contents of Daily Zonal Mean Tape	23

SECTION 1 - INTRODUCTION

The Backscattered Ultraviolet (BUV) experiment was proposed by D.F. Heath and J.V. Dave for the Nimbus 4 satellite. The details of the experiment have been described by Heath, D.F., Krueger, A.J., and Mateer, C.L., (Nimbus 4 User's Guide, Goddard Space Flight Center, Greenbelt, Maryland 20771, 1970). The experiment is capable of retrieving total ozone as well as the vertical distribution of ozone (ozone profile) in the stratosphere. The mathematical approach for the total ozone algorithm was developed by Dave, J.V. and Mateer, C.L., ("A Preliminary Study on the Possibility of Estimating Total Atmospheric Ozone from Satellite Measurements", Journal of the Atmospheric Sciences, 24, pp. 414-427, 1967). The foundations of the ozone profile algorithm have been discussed by Mateer, C.L., ("A Review of Some Aspects of Inferring the Ozone Profile by Inversion of Ultraviolet Radiances", Mathematics of Profile Inversion, Ed., L. Colin, NASA Technical Memorandum TMX-62, 150, 1972).

The BUV experiment started operating in April 1970 and continued to send data through April 1977, at which time the operation was discontinued due to loss of spacecraft power. For the first two and a half years the BUV coverage was essentially uniform over the globe. After August 1972, the instrument operated with reduced coverage due to the need to conserve the spacecraft power. Initially, the data was processed through the algorithms developed by C.L. Mateer and the results have been published by Mateer, C.L., Heath, D.F., and Krueger, A.J., ("Estimation of Total Ozone from Satellite Measurements of Backscattered Ultraviolet Earth Radiances", J. Atmos. Sci, 28, 1307-1311, 1971). Because of the increased awareness of the importance of ozone data and the value of the Nimbus 4 data as the only global measurement available in the early 1970's, the Ozone Processing Team (OPT) was formed in 1976. The total ozone data for all the seven years has been archived by the OPT. This data set is described in a NASA Technical Memorandum ("User's Guide to the Nimbus 4 Backscattered Ultraviolet Experiment Data Sets, Ozone Processing Team, NASA TM78069, Goddard Space Flight Center, Greenbelt, Maryland 20771, 1978).

The BUV profile data set is now complete and archived in the NSSDC. Any of the archived products may be obtained by writing the National Space Sciences Data Center, Goddard Space Flight Center, Greenbelt, Maryland 20771. This profile data set is a result of 3 years of effort by the OPT to improve the available retrieval algorithms and to create a consistent data set over the life span of the experiment. The resulting data has been validated using internal consistency checks and by comparing it with external ground truth measurements such as Umkehr, ozone-sonde and rocket measurements. Documents detailing the algorithm, the validation effort, and the instrument performance are being prepared and will be available shortly. A User's Guide entitled

"User's Guide for the Nimbus 4 BUV Ozone Profile Data Sets" is near completion and will be sent to all requestors when available. It will address the problems associated with using this data set to infer long-term trends in the atmospheric ozone. All users of this data set are cautioned to become familiar with the issues discussed in this User's Guide before interpreting the trends which exist in the data set.

The purpose of this document is to describe the tape formats and descriptions of the ozone profile tapes which have been archived at NSSDC. The profile data set is archived in 3 different sets of tapes:

- a. Detailed Profile Tapes (DPFL)
- b. Compress Profile Tapes (CPFL)
- c. Daily Zonal Means Tapes, DZP (using geodetic coordinates) and DZPM (using geomagnetic coordinates)

Section 2 of this document describes the tape formats of DPFL tapes. Detail descriptions of the certain words in the data record are also given where necessary. Section 3 and 4 contain a similar description for the CPFL tapes and the DZPM tapes respectively. Section 5 gives a catalog of all the tapes archived. Finally, Appendix A contains a brief discussion of the dark current correction applied to the measured radiances and the Appendix B gives a sample computer program to read and print the contents of a CPFL tape along with a sample output.

SECTION 2 - DETAILED PROFILES

2.1 Tape Structure

The Detailed Profile (DPFL) Tape contains the ozone profile calculated from the data on Detailed Total Ozone (DTOZ) Tape. It consists of a header file, a number of data files (one for each orbit) and a trailer file.

The header file is the first file on the tape and is used to identify the tape. It has satellite identification and also information regarding the program that made this tape, the version number and date of version of the program. This file consists of two physical records of 600 bytes each. The formats of the header file records are presented in Table 2.1.

Each data file contains a header record followed by data records. The header record contains the unique number of input tapes used to produce the profile data, the orbit number of the data and day and the job ID of the actual production run. The format of the header record is described in Table 2.2. Each data record contains the radiance and position information and the retrieved profiles for each scan. The quantities in groups of eight correspond to eight monochromator channels with wavelength bands centered at 2555, 2735, 2830, 2876, 2922, 2975, 3019, 3058A⁰. Similarly the retrieved profile is given at 16 discrete pressure levels (0.3 mb, 0.4 mb, 0.5 mb, 0.7 mb, 1.0 mb, 1.5 mb, 2.0 mb, 3 mb, 4 mb, 5 mb, 7 mb, 10 mb, 15 mb, 20 mb, 30 mb, and 40 mb). Table 2.3 describes the format of a data record. The last logical record of a data file is a trailer record. It contains the summary of data processed in the data file and an error summary for data rejected during processing. The tape format for the trailer record is described in Table 2.4.

The last file on the tape is the trailer file. It gives the summary of all the data processed to create this profile tape. The format of the trailer file is given in Table 2.5.

2.2 Data Control Block Information

Tape is 9-track IBM compatible, binary, non-labelled.

Record Format (RECFM) = Fix-Blocked (FB)
Logical Record Length (LRECL) = 600 Bytes
Blocksize (BLKSIZE) = 30,000 Bytes
Density (DEN) = 1600 BPI (DEN = 3)

2.3 Tape Record Formats

The tape record formats are given in Tables 2.1 - 2.5. A detailed description of the words in each record follows the tables where-ever necessary.

TABLE 2.1

HEADER FILE OF DPFL TAPE

RECORD 1

<u>WORD</u>	<u>DESCRIPTION</u>	<u>TYPE</u>
1	Satellite ID (Nimbus 4)	R*8 EBCDIC
2	Experiment ID (BUV)	R*8 EBCDIC
3	Program Name (BUVPFL)	R*8 EBCDIC
4	Date of Program Version (April 1980)	R*8 EBCDIC
5	Version No. of Program (Vers 04)	R*8 EBCDIC
6	Unique No. of Output Tape	R*8 EBCDIC
7-10	DCB of the Output Tape 4 Words (RECFM=FB, LRECL=600 BLK=16000 [†] DEN=3)	R*8 EBCDIC
11-12	Day of Week and Date of Job Run (e.g. Tues., Jan. 18, 1979) Two R*8 Words	R*8 EBCDIC
13	Starting Month of Data (e.g. Month = 01)	R*8 EBCDIC
14	Ending Month of Data (e.g. Month = 02)	R*8 EBCDIC
15	Calendar Year of Data (e.g. 70 for 1970)	R*8 EBCDIC
REST	Annotation (= 77777777)	R*8 EBCDIC

RECORD 2

1	Number of Files on Output Tape (= -77)	R*4
2	Total Number of Logical Records in Header File (always 2)	R*4
3	Start Day of First Orbit	R*4
4	Start Time of First Orbit (seconds)	R*4
5	Starting Lat. (-90 to +90) of First Orbit	R*4
6	Starting Long. (0 to 360W) of First Orbit	R*4
7-LAST	Spares (= -77.)	R*4

[†]ERROR: The blocksize of 16000 written in Words 7-10 is incorrect.
The actual value is 30000.

TABLE 2.2

HEADER RECORD OF DPFL TAPE

<u>4-BYTE WORD</u>	<u>DESCRIPTION</u>	<u>TYPE</u>
1	Logical Sequence Number (always 1.0)	R*4
2	Spare (0.0)	R*4
3-4	Unique No. of Input Tape	R*8 EBCDIC
5-8	Day and Date of the Job Run Two R*8 Words (e.g. Tues, Jan 18, 1979)	R*8 EBCDIC
9-10	Job ID (e.g. ZM2SABUV)	R*8 EBCDIC
11	Day of the Beginning of the First Good Scan of the First Orbit on the Output Tape	R*4
12	Time in Secs. of Day for (11) Above	R*4
13	Lat. (-90 to +90) at (11) Above	R*4
14	Long. (0 to 360W) at (11) Above	R*4
15	Week No. of the Start of the Orbit	R*4
16	Orbit No.	R*4
17-18	Program Name (BUVPFL)	R*8 EBCDIC
19-20	Version Date (Apr 80)	R*8 EBCDIC
21-22	Version No. (Vers 04)	R*8 EBCDIC
23	β_o , Photometer Gain Factor	R*4
24	β_o , Monochromator Gain Factor	R*4
25-26	Day of Job Run (e.g. 79.018 = Jan. 18, 1979)	R*3 EBCDIC
27-150	Annotation = (-77.)	R*4

TABLE 2.3

DATA RECORD OF DPFL TAPE (150 R*4 WORDS)

<u>WORD</u> <u>1-150</u>	<u>DESCRIPTION</u>
1	Logical Sequence Number
2	Orbit Number of the Data
3	Day at Start of Scan
4	Seconds of Day
5	Latitude (Average for Profile Computation)
6	Longitude (Average for Profile Computation)
7	Solar Zenith Angle (Average for Profile Computation)
8	Terrain Pressure (atm)
9	Reflectivity
10	Total Ozone (atm-cm)
11-18	8-Monochromator N-Values (255.5-305.8nm)
19	Dark Current Code
20	Error Code
21	Lower First Guess Mixing Fraction
22	First Guess Total Ozone (atm-cm)
23-24	Parameters C and σ
25	Pressure level (mb) of Upper First Guess Join
26-27	Multiple Scattering Mixing Fractions (297.5 nm and 305.8 nm)
28-35	Q-Values Corrected for Multiple Scattering and Surface Reflectivity (255.5-305.8 nm)
36-43	Cut-Off Levels (mb) for Each Channel Integration (255.5-305.8 nm)
44-51	Pressure Levels where Contribution Functions Peak (mb)
52-59	Initial residuals (255.5-305.8 nm)
60-67	Spares (-77)
68	Ozone Center of Gravity Pressure (mb)
69-84	First Guess Cumulative Ozone Amount (matm-cm) at the 16 Pressure Levels
85-100	First Guess Mixing Ratio in ($\mu\text{gm/gm}$) at the 16 Pressure Levels
101-116	Final Cumulative Ozone Amount in atm-cm at the 16 Pressure Levels given in text
117-132	Final Mixing Ratio ($\mu\text{gm/gm}$) at the 16 Pressure Levels given in text*
133-136	Photometer reflectivities for Four Longer Wavelength Profile Channels (292.2, 297.5, 301.9, 305.8 nm)
137	Effective Surface Pressure (atm)
138-141	Multiple Scattering and Reflectivity Correction to Q for Four Longer Wavelength Profile Channels (292.2, 297.5, 301.9, 305.8 nm) (in atm)
142	Total Ozone Used for Multiple Scattering (atm-cm)
143-150	Weight for Each Profile Wavelength (255.5 nm - 305.8nm)

*Note: Mixing ratios at pressure levels outside the validity range have been set negative.

The following is a detailed description of certain words on the DPFL data record:

<u>WORD</u>	<u>DESCRIPTION</u>
(1)	Logical sequence number of the scan in the file. It always starts with two since one is the logical sequence number of the header record.
(2)	Orbit number is counted from launch.
(3)	Day number from Julian calendar
(4)	Seconds of day are given in universal time. Each scan is completed in 32 seconds.
5-7	These quantities are given for the subsatellite point at the midpoint of the sequence of radiance measurements needed to infer the profile.
(5)	Latitude is positive in the northern hemisphere and negative in the southern.
(6)	Longitude is 0 to 360° increasing westward from Greenwich.
(7)	Solar zenith angle. Profiles are inverted for solar zenith angles from 0 to 85.7°.
(8)	Terrain height is obtained by interpolation of tables based on NOAA/NMC terrain height tape.
(9)	Reflectivity is the best value computed by the total ozone algorithm.
(10)	Total ozone is the best value computed by the total ozone algorithm.
(11-18)	Eight monochromator N-values are given, one for each wavelength from 255.5 to 305.8 nm respectively. The N-value for each wavelength is defined as the ratio of the nadir backscattered radiance (I) to the solar irradiance (F) in logarithmic units such that : $N = -100 \log_{10} (I/F)$
(19)	Dark current correction code. Codes 4,5 and 6 represent scans with large uncorrectable dark current. For these codes, profiles are not retrieved.

WORDDESCRIPTION

(19 - Cont.)

The definitions of the code values are as follows:

<u>Code</u>	<u>Definition</u>
1	0-4999 counts/sec
2	5000-10,999 cps
3	11000-19,999 cps
4	>20,000 cps
5	Instrument saturation
6	No night time data available - presumed to be like Code 4
7	No night time data available - presumed to be like Code 1
8	No night time data available - presumed to be like Code 2
9	No night time data available - presumed to be like Code 3

(20)

Inversion error code. The definitions of the error codes are as follows:

<u>Code</u>	<u>Definition</u>
Ø	Good scan
1	Bad or missing N-values (includes cam position problems in profile channels)
2	Flagged best Omega value (other than cam motion and other than SZA greater than upper limit 85.7°)
3	Radiation Anomaly
4	Sigma is either too low (<.3) or too large (>.8)
5	C is either too low (<.5) or too large (>5)
6	Bad initial residues. First guess Q-values differ from observed Q-value by more than 40 percent.
7	Bad pressure levels. Retrieved pressure level is either negative or pressure at upper level is greater than the pressure at lower level.

WORDDESCRIPTION

(20 - Cont.)	<u>Code</u>	<u>Definition</u>
	9	Bad measurements of total ozone channels because of cam position problems
	10	Solar zenith angle greater than limit (85.7°)
	11	Reflectivity outside range (-0.05 to +1.05)
	12	Photometer reflectivity at measurement time of a profile channel's measurement was out of range (-.05 to +1.05)
	13	Mixing ratio too large (greater than 23.0)
	14	Height of ozone center of gravity outside the range (10-100 mb)
(21)		Weight used to mix the climatological profiles from adjacent latitude bands to obtain the lower first guess. This weight is determined by the latitude of the scan's field of view.
(22)		Cumulative ozone amount (matm-cm) at 1 atm pressure level for the first guess profile. This number may be slightly different from Word 10 due to several factors including terrain height and the upper level first guess.
(23)		Parameter C of the exponential ozone model. It represents the ozone (matm-cm) above a pressure of 1 mb.
(24)		Parameter σ of exponential ozone model represents ratio of ozone to air scale height. The equation relating ozone(X), in matm-cm to the parameters C, σ is given by $X(P) = C P^{1/\sigma}$ where P is the pressure in mb. The parameters C and σ are determined using the radiances of the two shorter wavelength channels 273.5 and 283.0 nm.
(25)		Pressure (mb) above which the exponential ozone model is used in the first guess construction.
(26)		Mixing fraction used in correcting multiple scattering correction for the 297.5 channel.
(27)		Similar to Word (27) but applies to 305.8 nm channel.

WORDDESCRIPTION

- (28-35) The observed Q-values for channels 255.5-305.8 such that Word (28) applies to 255.5 channel and Word (35) applies to 305.8 corrected for multiple scattering and non-zero surface reflectivity effects. Q-values are defined as
- $$Q = \frac{4\pi}{\beta P(\theta)} 10^{-N/100}$$
- where β is the air scattering coefficient and $P(\theta)$ is the scattering phase function which is given by
- $$P(\theta) = 0.7629 (1 + 0.932 \cos^2 \theta)$$
- where θ is the solar zenith angle and N is measured N-value.
- (36-43) Pressures in mb for which integrations are done for calculating first guess Q-values for channels (255.5-305.8) such that Word (36) corresponds to the pressure for channel 255.5 and Word (43) corresponds to the pressure for channel 305.8.
- (44-51) Pressures in mb of the maximum radiance contribution to the first guess Q-values for each of the channels (255.5-305.8) such that Word (44) applies to the 255.5 channel and Word (51) the 305.8 channel.
- (52-59) Initial residuals for the channels 255.5 through 305.8 such that Word (52) applies to the 255.5 channel and Word (59) applies to the 305.8 channel. The initial residual is the fraction of the observed radiance which is unaccounted for by the first guess and the multiple scattering.
- (68) Pressure (mb) above which the ozone is half of the total ozone.
- (69-84) First guess cumulative ozone amount or overburden (matm-cm) for the 16 standard pressure levels (0.3, 0.4, 0.5, 0.7, 1.0, 1.5, 2.0, 3.0, ~~4.0~~, 5.0, 7.0, 10.0, 15.0, ²⁰30.0, 40.0 mb).
- (85-100) Similar to Words (69-84) but represents the mixing ratios (microgram/gm) at the 16 standard pressure levels.
- (101-116) Cumulative ozone amounts at the 16 standard pressure levels for the final retrieved profile.

WORDDESCRIPTION

- (117-132) Mass mixing ratios at the 16 standard pressure levels for the final retrieved profile.
- The partial pressure P_3 in nanobars can be obtained from the mass³ mixing ratio R_3 by the following equation:
- $$P_3 = R_3 \cdot P/1.657$$
- Note that the mixing ratios are set negative for pressure levels lying outside the determined validity range.
- (133-136) Photometer reflectivities for channels 292.2-305.8 nm. The reflectivities are computed from photometer measurements taken at the same time as the monochromator measurements. They are used in estimating the multiple scattering corrections.
- (137) Effective surface pressure is computed using the reflectivity in Word 9. This pressure is used to define the lower boundary for the radiance integration.
- (142) Total ozone in matm-cm integrated to 1.0 atm and is equal to the best ozone (Word 10) in absence of high terrain.
- (143-150) Relative weights applied to channels 255.5 through 305.8 nm such that Word (143) applies to channel 255.5 and Word (150) to channel 305.8 nm.
- The weights are zero for the 255.5 and 301.9 nm channels. The weights are unity for the 273.5, 283.0 and 287.6 nm channels. For the longer channels the weights are determined by the estimated errors in their multiple scattering correction.

TABLE 2.4

TRAILER RECORD OF DPFL TAPE

<u>4-BYTE WORD</u>	<u>DESCRIPTION</u>	<u>TYPE</u>
1	Negative of Log. Seq. No. (= N, where N-2 = No. of Scans for this Orbit)	R*4
2	Orbit No.	R*4
3	Day at the End of the Last Scan of the Orbit	R*4
4	Time in Secs. of Day for (3) Above	R*4
5	Lat. (-90.0 to +90.0) at (3) Above	R*4
6	Long. (0 to 360.0W) at (3) Above	R*4
7	-77.	R*4
8	-77.	R*4
9-10	Unique No. of the Input Tape	R*8
11	No. of Scans Read from DTOZ Tape	R*4
12	No. of Good Profile Scans	R*4
13	No. of Scans Rejected for bad N-values Including Scans with Cam Problems in Profile Channels	R*4
14	No. of Scans Rejected for No Total Ozone being available. (Does not include those scans counted for words 21 and 22)	R*4
15	No. Scans Rejected for Radiation-Anomaly	R*4
16	No. Scans Rejected for Bad Value of Sigma	R*4
17	No. Scans Rejected for Bad Value of C	R*4
18	No. Scans Rejected for Anomalous Initial Residuals	R*4
19	No. Scans Rejected for Retrieving Bad Pressure Levels	R*4
20	Spare (0.)	R*4
21	No. Scans Rejected for Cam Not in Position for Total Ozone Channels	R*4
22	No. Scans Rejected for Solar Zenith Angle Greater than Upper Limit (85.7°)	R*4
23	No. Scans Rejected for Reflectivity being Outside the Range (-0.05 to +1.05) in total Ozone Channels	R*4
24	No. Scans Rejected for Bad Reflectivity	R*4
25	No. Scans Rejected Bad Mixing Ratio >23.0	R*4
26	No. Scans Rejected for Height of Ozone Center of Gravity Outside the Range (10-100 mb)	R*4
27-150	Spare (-77.)	R*4

TABLE 2.5

TRAILER FILE OF DPFL TAPE

<u>4-BYTE WORD</u>	<u>DESCRIPTION</u>	<u>TYPE</u>
1	Trailer File Identifier (Always -1.0)	R*4
2	No. of Files on the Output Tape (Including Header File and the Trailer File)	R*4
3	Day at the End of the Last Scan of the Orbit on Tape	R*4
4	Time in Secs of Day for (3) Above	R*4
5	Lat. (-90.0 to +90.0) at (4) Above	R*4
6	Long. (0.0 to 360.0W) at (4) Above	R*4
7	No. of DTOZ-Tape Files Read	R*4
8	Spare (-77.)	R*4
9-10	Unique No. of the Input Tape	R*8 EBCDIC
11-26	Same as Words 11-26 on Trailer Record Totaled for Entire File	R*4
27-150	Spares (-77.)	R*4

SECTION 3 - COMPRESSED OZONE PROFILES

3.1 Tape Structure

The Compressed Profile Tape (CPFL) contains one or more years of ozone profiles calculated from radiances measured by BUUV instrument on the Nimbus 4 satellite. The tape is made from several Detailed Profile Tapes (DPFL).

There are only data files on this tape and each file contains only data records (i.e. no header or trailer records). In addition, only a subset of the DPFL data record has been selected as the data record of the CPFL.

3.2 Data Control Block Information

Tape is 9-track IBM compatible, binary, non-labelled.

Record Format (RECFM) = Fix-Blocked (FB)
Logical Record Length (LRECL) = 200 Bytes
Blocksize (BLKSIZE) = 30,000 Bytes
Density (DEN) = 1600 BPI (DEN = 3)

3.3 Tape Record Format

The tape record formats for the data record are given in Table 3.1. A detailed description of the words in the record follows the table wherever necessary.

TABLE 3.1

DATA RECORD OF CPFL TAPE

<u>WORD</u>	<u>DESCRIPTION</u>	<u>TYPE</u>
1	Sequence Number	R*4
2	Orbit Number	R*4
3	Year	R*4
4	Julian Day	R*4
5	Time in Seconds of Day	R*4
6	Latitude	R*4
7	Longitude	R*4
8	Solar Zenith Angle	R*4
9	Reflectivity	R*4
10	Total Ozone	R*4
11-18	Eight Monochromator N-Values (255.5-305.9 nm)	R*4
19	Anomaly Code (Dark Current)	R*4
20-32	Ozone Above at 13 Standard Pressure Levels (.7 mb-40 mb)	R*4
33-45	Mixing Ratios at 13 Standard Pressure Levels (.7 mb-40 mb) *	R*4
46	Pressure Level (mb) where Ozone is Half of Total Ozone	R*4
47	Pressure Level (mb) for the Peak of Second Contribution Function	R*4
48	Pressure Level (mb) for the Peak of last contribution function	R*4
49-50	Parameter C and Sigma for Short Channels	R*4

*Note: Mixing ratios at pressure levels outside the validity range have been set negative.

The following is a detailed description of certain words on the CPFL data record:

<u>WORD</u>	<u>DESCRIPTION</u>
(1)	Logical sequence number of the scan in the file. It always starts with two since one is the logical sequence number of the header record.
(2)	Orbit number if counted from launch.
(5)	Seconds of day are given in universal time. Each scan is completed in 32 seconds.
6-8	These quantities are given for the subsatellite point at the midpoint of the sequence of radiance measurements needed to infer the profile.
(6)	Latitude is positive in the northern hemisphere and negative in the southern.
(7)	Longitude is 0 to 360 ⁰ increasing westward from Greenwich.
(8)	Solar zenith angle. Profiles are inverted for solar zenith angles from 0 to 85.7 ⁰ .
(9)	Reflectivity is the best value computed by the total ozone algorithm.
(10)	Total ozone is the best value computed by the total ozone algorithm.
(11-18)	Eight monochromator N-values are given, one for each wavelength from 255.5 to 305.8 nm respectively. The N-value for each wavelength is defined as the ratio of the nadir backscattered radiance (I) to the solar irradiance (F) in logarithmic units such that: $N = -100 \log_{10}(I/F)$
(19)	Dark current correction code. The definitions of the code values are as follows:

<u>Code</u>	<u>Definition</u>
1	0-499 counts/sec
2	5000-10,999 cps
3	11000-19,999 cps
7	No night time data available - presumed to be like Code 1
8	No night time data available - presumed to be like Code 2
9	No night time data available - presumed to be like Code 3

WORDDESCRIPTION

- (20-32) Cumulative ozone (matm-cm) amounts at 13 pressure levels (0.7, 1.0, 1.5, 2.0, 3.0, 4.0, 5.0, ~~6.0~~, 7.0, 10.0, 15.0, 20.0, 30.0, 40.0 mb). ^{4.0}
- (33-45) Mixing ratios (micrograms/gm) for the above 13 pressure levels (0.7-40 mb). Mixing ratios outside the validity range have been set negative.
- (49) Parameter C of the exponential ozone model. It represents the ozone above 1 mb in matm-cm.
- (50) Parameter σ of the exponential ozone model and represents ratio of ozone to air scale height.
- The equation relating ozone (X), in matm-cm to the parameters C, σ is given by
- $$X(P) = C P^{1/\sigma}$$
 where P is the pressure in mb.
- The parameters C and σ are determined using the radiances of the two shorter wavelength channels 273.5 and 283.0 nm.

SECTION 4 - DAILY ZONAL MEANS

4.1 Tape Structure

The Daily Zonal Profile Tape contains the average and standard deviation for the cumulative ozone (matm-cm), mixing ratio (microgram/gm) and partial pressure (nanobars) at various pressure levels. The tape is generated from the compressed profile (CPFL) tapes. Daily statistical analyses are performed in specified latitude zones for an entire year. The latitude zones are defined to be 10° wide. Hence, there are in all 17 latitude zones centered at -80° , -70° , -60° , , 60° , 70° and 80° . The standard deviation of the mean is computed using the following expression:

$$\sigma = \sqrt{\frac{\sum_{i=1}^N \chi_i^2 - \frac{(\sum_{i=1}^N \chi_i)^2}{N}}{N-1}}$$

where χ_i is the value of the ozone profile at the i^{th} data point within a latitude zone containing N data points.

There are two tapes - DZP and DZPM. The DZP tape contains the data set produced with geodetic coordinates, whereas for the DZPM, tape geomagnetic coordinates are used.

The two tapes have the same format. There are only data files on this tape and each file contains only data records (no header or trailer records present). Each file contains one year's worth of data for a given pressure level. Each logical record corresponds to data for one latitude zone. Thus there are 17 logical records per day (one for each latitude zone where the first record for the day is zone -80° and the 17th record is for zone $+80^\circ$). The data is arranged sequentially by day within the file.

4.2 Data Control Block Information

Tape is 9-track IBM compatible, binary, non-labelled.

Record Format (RECFM) = Fix-Blocked (FB)
Logical Record Length (LRECL) = 40 Bytes
Blocksize (BLKSIZE) = 16,000 Bytes
Density (DEN) = 1600 BPI (DEN = 3)

4.3 Tape Record Format

The tape record format is given in Table 4.1.

TABLE 4.1

DATA RECORD OF DZP/DZPM TAPES

<u>4-BYTE WORD</u>	<u>DESCRIPTION</u>	<u>TYPE</u>
1	Co-ordinate indicators =+1 Geomagnetic Co-ordinate (DZPM Tape) =-1 Geodetic Co-ordinate (DZP Tape)	I*4
2	Julian Day	I*4
3	Number of Points in the Latitude Zone	I*4
4	Pressure level in mb at which zonal means are calculated	R*4
5	Mid point of latitude zone	
6	Average cumulative ozone (matm-cm) above the Pressure Level given in word 4 for the Latitude Zone given in word 5	R*4
7	Standard Deviation of Word (6)	R*4
8	Average Mixing Ratio ($\mu\text{gm/gm}$ for the Latitude Zone given in word 5	R*4
9	Standard Deviation For Word (8)	R*4
10	Average Ozone Partial Pressure (nanobars) for the Latitude Zone given in word 5	R*4

SECTION 5 - TAPE CATALOG

The entire DPFL data set is contained in thirty-seven 9-track tapes. Each DPFL tape contains one month to six month's worth of data. Table 5.1 contains a list of these tapes and describes the time coverage for each DPFL tape. The number of files in each tape varies from about 190 files in April, 1971, to slightly over 500 files for July-December 1972. When reading the tapes, a check for the presence of the trailer file (see Word 1 of Table 2.5) should be made to ensure the end of data on the tape (likewise a check for the presence of a trailer record should be made for the end of each data file).

Since the CPFL tapes is a stripped-down data set from the DPFL, the entire CPFL data set is contained in only four 9-track tapes with a total of 37 files, each of which corresponds to one DPFL tape coverage. Table 5.1 also lists these tapes and describes the time coverage for each CPFL tape and file. Table 5.2 gives a brief outline of the content of the DZP/DZPM tape.

TABLE 5 .1

TAPE CATALOG FOR PROFILE TAPES

DPFL <u>Tape #</u>	CPFL <u>Tape #/File #</u>	TIME RANGE <u>Mo/Year</u>
1	1/1	4/70
2	1/2	5/70
3	1/3	6/70
4	1/4	7/70
5	1/5	8/70
6	1/6	9/70
7	1/7	10/70
8	1/8	11/70
9	1/9	12/70
10	2/1	1/71
11	2/2	2/71
12	2/3	3/71
13	2/4	4/71
14	2/5	5/71
15	2/6	6/71
16	2/7	7/71
17	2/8	8/71
18	2/9	9/71
19	2/10	10/71
20	2/11	11/71
21	2/12	12/71
22	3/1	1/72
23	3/2	2/72
24	3/3	3/72
25	3/4	4/72
26	3/5	5/72
27	3/6	6/72

TABLE 5.1 (CONT.)

DPFL <u>Tape #</u>	CPFL <u>Tape #/File #</u>	TIME RANGE <u>Mo/Year</u>
28	3/7	7/72 - 12/72
29	4/1	1/73 - 6/73
30	4/2	7/73 - 12/73
31	4/3	1/74 - 6/74
32	4/4	7/74 - 12/74
33	4/5	1/75 - 6/75
34	4/6	7/75 - 12/75
35	4/7	1/76 - 6/76
36	4/8	7/76 - 12/76
37	4/9	1/77 - 5/77

TABLE 5.2

CONTENTS OF DZP/DZPM TAPE

<u>FILE #</u>	<u>PRESSURE (mb)</u>	<u>YEAR</u>
1-8	0.7	1970-77
9-16	1.0	1970-77
17-24	1.5	1970-77
25-32	2.0	1970-77
33-40	3.0	1970-77
41-48	4.0	1970-77
49-56	5.0	1970-77
57-64	7.0	1970-77
65-72	10	1970-77
73-80	15	1970-77
81-88	20	1970-77
89-96	30	1970-77
97-104	40	1970-77
105-112	1000	1970-77

APPENDIX A - DARK CURRENT CORRECTION

The BUV instrument contains a sensitive photomultiplier tube to detect and amplify the weak backscattered radiation from the earth around 250 nm. Even in the absence of any incoming signal, such tubes generally produce an output current called "dark current". The magnitude of this current is affected, among other things, by the ionizing charged particle background produced by cosmic rays. Despite careful shielding, the BUV instrument upon launch was found to be extremely sensitive to the charged particles that are trapped in certain areas of the magnetic anomaly over the earth. Most prominent of these lies over the southern part of the Atlantic ocean called "South Atlantic Anomaly". For the 255 nm channel of the instrument, the background count was found to be orders of magnitude higher than the expected signal when the satellite passed over the heart of the anomaly. Other less intense areas were found in the auroral horns over the mid latitudes in both hemispheres.

In order to retrieve as much data as possible, the OPT sponsored a detailed study of the dark current output of the instrument from an analysis of the data collected during the night time. This study was performed by E.G. Stassinopoulos, et. al. They have published the details of this work (Stassinopoulos, E.G., L.L. Felton, and R.A. Goldberg, "Nimbus-4 BUV Dark Current Study: Seasonal Background Models", NASA TM-80302, May 1979). The study resulted in a high spatial resolution computer coded map of the dark current count for each of the four seasons. For a given latitude and longitude, a dark current code is assigned. The definition of the code is as follows:

<u>Code</u>	<u>Definition</u>
1	0-4999 counts/sec
2	5000-10,999 cps
3	11000-19,999 cps
4	>20,000 cps
5	Instrument saturation
6	No night time data available - presumed to be like Code 4
7	No night time data available - presumed to be like Code 1
8	No night time data available - presumed to be like Code 2
9	No night time data available - presumed to be like Code 3

A correction to the measured output is made only if it is determined that the 2735A⁰ channel will not have an error exceeding 1% as a result of the uncertainties in applying the correction. Based on this criterion, no profile is retrieved for Codes 4 and 5 which causes a large gap over the South Atlantic in the processed data.

Codes 6,7,8 and 9 were assigned to those areas over the earth which remain in daylight or twilight over the entire season, thus preventing an estimation of the dark current.

APPENDIX B - PROGRAM TO READ CPFL TAPE

A sample program is given here which reads the Compressed Profile Tape on the GSFC IBM 360-91.

The program reads from data cards the volume serial number of the CPFL tape, the first and last file to be read and the number of scans to be printed from each file. The tape is mounted on unit 12, positioned to the specified files and desired number of scans printed.

A sample printout is shown below. Not all of the data contained in the data record is printed. This allows each scan to be summarized on one line.

```

0010 C*****
0020 C
0030 C PROGRAMME TO READ COMPRESSED PROFILE TAPE
0040 C
0050 C*****
0060 C
0070 C SUMMARY OF VARIABLES
0080 C * IFILES STARTING FILE NUMBER
0090 C * IFILEE ENDING FILE NUMBER
0100 C * NSCAN NUMBER OF SCANS TO BE PRINTED FROM EACH FILE
0110 C * REC ARRAY CONTAINING THE DATA RECORD READ
0120 C *TAPEIN VOLUME SERIAL NUMBER OF INPUT TAPE (CPFL TAPE)
0160 C
0170 C*****
0180 C
0190 REAL*8 TAPEIN
0200 DIMENSION REC(50)
0210 C
0220 C**** READ IN VOLUME SERIAL NUMBER OF TAPE,RANGE OF FILES TO BE READ
0230 C**** AND NUMBER OF SCANS TO BE PRINTED FROM EACH FILE
0240 C
0250 READ(5,1000)TAPEIN,IFILES,IFILEE,NSCAN
0260 WRITE(6,2000)TAPEIN,IFILES,IFILEE,NSCAN
0270 C
0280 C**** MOUNT THE INPUT TAPE
0290 C
0300 CALL MOUNT(1,12,TAPEIN,1)
0310 C
0320 C**** PROCESS FILES ONE AT A TIME.FROM EACH FILE PRINT THE DESIRED
0330 C**** NUMBER OF SCANS
0340 C
0350 DO 300 IFILE=IFILES,IFILEE
0360 CALL POSN(1,12,IFILE)
0370 WRITE(6,2100)IFILE
0380 WRITE(6,2200)
0390 I=0
0400 100 CONTINUE
0401 I=I+1
0410 CALL FREAD(REC,12,LENH,1200,1199)
0420 IF(I.LE.NSCAN)WRITE(6,2300)(REC(J),J=2,10),REC(49),
0430 REC(50),REC(46),REC(33),(REC(J),J=34,44,2)
0440 GO TO 100
0450 199 CONTINUE
0460 WRITE(6,2399)I
0470 GO TO 100
0480 200 CONTINUE
0490 WRITE(6,2400)I
0500 300 CONTINUE
0510 WRITE(6,2500)
0520 STOP
0530 C
0540 C*****
0550 C FORMATS
0560 C*****
0570 C
0580 1000 FORMAT(A8,3I5)
0590 2000 FORMAT(/3X,'VOLUME SERIAL NUMBER OF INPUT TAPE :',T53,A8/
0600 , 3X,'RANGE OF FILES TO BE READ :',T45,I8,' THROUGH',I5/
0610 , 3X,'NUMBER OF SCANS TO BE PRINTED FROM EACH FILE',T45,I8/)
0620 2100 FORMAT(/3X,38('*')/3X,'*',T41,'*'/3X,'*',T6,'CPFL TAPE ',
0630 , 'POSITIONED TO FILE ',I4,T41,'*'/3X,'*',T41,'*'/
0640 , 3X,38('*')/)
0650 2200 FORMAT(/ ORBIT YEAR DAY SECS LAT LONG SZA ',
0660 , 'RFLCT OZONE C SIGMA PHALF ..MIXING RATIO',
0670 , '(MICROGRAM/GM)...'/T86,'0.7MB 1.0MB 2.0MB 4.0MB ',
0680 , '7.0MB 15.MB 30MB')
0690 2300 FORMAT(1X,F9.0,2F6.0,F8.0,F6.1,F7.1,F6.1,2F7.3,F7.2,2X,F6.3,
0700 , F5.1,7F7.2)
0710 2399 FORMAT('***** TAPE READ ERROR ENCOUNTERED IN READING SCAN',I6,
0720 , ' READ NEXT SCAN')
0730 2400 FORMAT(/3X,'TOTAL SCANS READ :',I6/)
0740 2500 FORMAT(/3X,'.....JOB COMPLETED SUCCESSFULLY.....')
0750 C
0760 END
0 OF DATA

```

VOLUME SERIAL NUMBER OF INPUT TAPE :
RANGE OF FILES TO BE READ :
NUMBER OF SCANS TO BE PRINTED FROM EACH F

BUV36
1 THROUGH 3
5

*
* CPFL TAPE POSITIONED TO FILE 1 *
*

ORBIT	YEAR	DAY	SECS	LAT	LONG	SAZ	RFLCT	OZONE	C	SIGMA	PHALF	..MIXING RATIO(MICROGRAM/GM)...						
												0.7MB	1.0MB	2.0MB	4.0MB	7.0MB	15.MB	30MB
35.	1970.	100.	80801.	63.3	178.8	57.6	0.798	0.489	1.50	0.604	67.7	4.10	5.22	8.49	11.13	10.90	8.67	7.62
35.	1970.	100.	80833.	64.9	180.6	59.4	0.896	0.496	1.51	0.611	70.1	4.03	5.13	8.63	11.41	10.56	8.20	7.29
35.	1970.	100.	80865.	66.6	182.5	61.1	0.945	0.504	1.47	0.596	69.7	3.98	5.16	8.88	11.07	10.35	8.15	7.37
35.	1970.	100.	80897.	68.2	184.7	62.9	0.902	0.516	1.40	0.581	76.8	3.83	5.05	9.02	11.15	10.27	8.10	7.54
35.	1970.	100.	80929.	69.7	187.2	64.7	0.951	0.518	1.42	0.589	75.4	3.87	5.05	8.92	11.21	10.43	8.17	7.63

TOTAL SCANS READ : 12321

*
* CPFL TAPE POSITIONED TO FILE 2 *
*

ORBIT	YEAR	DAY	SECS	LAT	LONG	SAZ	RFLCT	OZONE	C	SIGMA	PHALF	..MIXING RATIO(MICROGRAM/GM)...						
												0.7MB	1.0MB	2.0MB	4.0MB	7.0MB	15.MB	30MB
305.	1970.	121.	7713.	-64.8	192.6	81.1	0.134	0.401	2.29	0.498	56.0	7.46	11.10	12.82	11.22	9.77	8.20	-7.29
305.	1970.	121.	7745.	-63.1	194.3	79.3	0.369	0.394	2.26	0.445	56.8	7.47	12.06	12.21	11.32	9.94	8.17	-7.18
305.	1970.	121.	7777.	-61.5	195.8	77.6	0.376	0.382	2.17	0.497	51.2	6.63	10.61	13.23	11.83	10.14	8.16	-6.97
305.	1970.	121.	7809.	-59.8	197.2	75.8	0.501	0.353	2.07	0.527	51.8	6.08	9.36	13.99	12.62	10.25	7.94	-6.49
305.	1970.	121.	7841.	-58.1	198.5	74.0	0.257	0.340	1.95	0.512	47.8	5.64	8.92	15.05	12.94	10.13	7.70	-6.19

TOTAL SCANS READ : 19026

*
* CPFL TAPE POSITIONED TO FILE 3 *
*

ORBIT	YEAR	DAY	SECS	LAT	LONG	SAZ	RFLCT	OZONE	C	SIGMA	PHALF	..MIXING RATIO(MICROGRAM/GM)...						
												0.7MB	1.0MB	2.0MB	4.0MB	7.0MB	15.MB	30MB
721.	1970.	152.	6049.	-58.2	191.1	81.1	0.436	0.343	1.87	0.574	48.1	5.45	7.91	11.01	9.50	8.65	7.82	-6.88
721.	1970.	152.	6081.	-56.5	192.3	79.3	0.439	0.313	1.90	0.557	48.5	5.48	8.20	11.70	9.86	8.72	7.64	-6.40
721.	1970.	152.	6113.	-54.8	193.4	77.5	0.444	0.296	1.88	0.517	43.8	5.58	8.54	12.12	10.71	9.04	7.59	-6.10
721.	1970.	152.	6145.	-53.1	194.4	75.7	0.439	0.265	1.88	0.539	36.4	5.40	8.30	12.84	10.90	9.49	8.02	-5.75
721.	1970.	152.	6177.	-51.4	195.4	74.0	0.585	0.262	1.82	0.482	35.1	5.41	9.14	13.62	11.50	10.09	8.49	-5.82

TOTAL SCANS READ : 18026

.....JOB COMPLETED SUCCESSFULLY.....

COMPRESSED
NIMBUS 4 OZONE PROFILE

[illegible]

(28800)	42910000	422487A9	43782000	42650000	44102100	424880EF	42F69755	4243FFB2	40E476CA	40965F0E
(28840)	43185D17	43186388	4317A7B7	43170CD5	43164835	43151F73	4313EAB5	43129011	41700000	40AD0DF4
(28880)	4114A9A7	412BCB4F	414AF370	419B26B0	41F8758F	4215A52F	4221CD5A	423210B7	42493A89	425ED7C1
(28920)	4288F098	42B083F5	413A3A44	414F43E1	4172D142	4191A398	41BA1C00	41CA8BD4	41CF07F3	41C48346
(28960)	41A8BE96	41936038	418FD592	4189BA6E	C18D22A0	424DE022	40DA9D79	41C10095	4114F8DE	40EDAD8D
(29000)	42920000	422487A9	43782000	42650000	44104100	4249FCC5	42FA8E54	4245C467	40EF183E	4090742D
(29040)	431878D0	43189694	4317CAF2	43172839	4316606D	431542A3	43141999	4312C6BF	41700000	408EF088
(29080)	4115EC4D	412C3F19	41496C66	41956FE8	41F116EC	42153120	42216855	4231EC26	4248F92A	425ED18F
(29120)	42893EB4	4250BBF1	413CCB59	414ED5F5	416C74EC	41880410	41B3B0B0	41C9814C	41D01A20	41C5EC4D
(29160)	41A905D9	41947825	41919806	418A4DF7	C17F956C	4243F2C9	40C2D747	41C10095	41164634	40962F85
(29200)	42930000	422487A9	43782000	42650000	44106100	424EE827	42EEF50F	42478C23	40EA7AA2	40EDAA11
(29240)	431898A1	4318B215	4317EA46	43174789	43168A83	4315E987	43144494	43138156	41700000	408755E2
(29280)	41154F61	412B9868	4148D222	4193D09F	41ED3C96	4214D33B	42210276	42317994	4248F842	425F2763
(29320)	428A0C78	4281A48C	41388863	414E2F3C	416CC20C	4187C2A0	41AFC0CA	41C47F1C	41CCE3C6	41C667A2
(29360)	41AAD2AB	41967D3C	4193D52B	418B3C80	C17FA393	4242F520	40C2D747	41A0C36F	4115985C	409368ED
(29400)	42940000	422487A9	43782000	42650000	44108100	424C9A50	43104530	42495716	40ED05F6	409D55ED
(29440)	4318D440	4318DD4E	4318116F	43177683	431681CB	43159C86	43147762	43133806	41700000	40894811
(29480)	411569A1	412BAEB8	4148C077	4193962A	41EC4C72	4214C020	4220D083	423112C8	42481A38	425DCB28
(29520)	4287FDDF	42AF447F	41387DEE	414E0823	416CEA82	41876218	41AE0055	41C3104C	41C07859	41C41482
(29560)	41A7B2BE	419333C0	4190C85C	C189AFC4	C178E460	42439390	40C2D747	41994E9D	41158DA3	40954A19
(29600)	42950000	422487A9	43782000	42650000	441DA100	424DBB64	4310AB09	42451887	40EAE8B6	408DE0D7
(29640)	4318F812	431900B0	43183C86	431795D4	4316DC0C	4315CE6C	4314AE19	43137686	41700000	40831E01
(29680)	41150574	412B6596	4148E2A2	41916915	41E84D0A	42146C5E	42207015	42308754	424767F7	425CF028
(29720)	42872F35	42AE95E0	413B11E4	414E5070	416C90C2	418E77C8	41AA7980	418FF450	41CB5F09	41C29AD4
(29760)	41A68CFC	41923FFD	41904D94	C18A054C	C17F540C	4243CCA9	40ADA6EF	4188A291	4115390E	40916354
(29800)	42960000	422487A9	43782000	42650000	441DE100	424F7162	4311A0D1	424EADF2	40E4F100	408EE5C4
(29840)	43195FC1	43197807	4318A267	4317FF92	43173E8F	43163CC9	43153300	431412CB	41700000	40BD2AAA
(29880)	411573E9	412AA597	4145E85C	418C2E5A	41E14321	4213E013	421FDE5C	422FFE7A	42471FDE	425D0F8C
(29920)	4287ECA1	42AF88C5	413AFAE0	414BA11B	4165F29D	417E85F1	41A5AA6A	41B02FA8	41C98D59	41C221A2
(29960)	41A7A1E4	419466A7	4192DD34	C18BBFEE	C1805A59	4243EF0A	409AC47E	416C8875	41158B7D	4099889E
FILE INPUT DATA RECORDS MAX. READ ERROR SUMMARY INPUT RETRIES										
RECS. INPUT SIZE PERM ZERO B SHORT UNDEF. ARECS. TOTAL#										
1 83 83 30000 0 0 0 0 0 0 0										
FILE	9	RECORD	144	LENGTH	34000	BYTES				
(0)	4453CB00	43E082C3	43782000	4316D000	45143250	411373FC	42A838F0	42189F53	401E83D1	403F7F7D
(40)	43161923	431640CA	4315A19B	43150A44	4314E03A	4312CD24	42F17469	42B984F6	41300000	408DC7DE
(80)	41120E70	4128D81D	414985E2	41A49F4F	4211E714	42193253	422A5524	42453958	4268EE53	4269AB31
(120)	42B0EEF7	42C79406	4134EAE7	4148D43D	4173EE1A	419E3450	41DA5385	41FC4018	42111E78	42129E3C
(160)	4212504A	41E3D1D7	41AD302C	416257E5	4139BE34	4211FA84	41134CD6	4317D74E	41123609	4080563C
(200)	4453CC00	43E082C3	43782000	4316D000	45144450	42113207	42AC499D	4228D8D6	401A03EE	40387DD7
(240)	431684F1	4316D364	4316179A	431588024	431489F8	4313177A	42FA38DF	4203A0D2	41300000	40A9A41D
(280)	411424A6	412A277B	4147E002	4198BA2C	41FC2748	4216816F	4224A588	423AAE28	425DD987	42787D8A
(320)	42A42E84	42BB26CF	41390987	414C59D1	416C86D0	418D4818	41C19215	41DC0700	41E78359	41F21414
(360)	41F8584B	41DB438A	41B1E44E	4165033F	413989F3	4211F363	41113326	4317C74E	41147972	408E2D8C
(400)	4453CD00	43E082C3	43782000	4316D000	45144650	4212F7F3	42ACC2FF	422AA63D	4013C2EC	403877B3
(440)	43167FF9	4316D75C	43162F38	4315978C	4314CD92	431336C9	42FB2D33	42C749F1	41300000	40925D0A
(480)	41124228	412895BC	41485906	419E29E2	42102906	4216C39F	42247C47	423A159A	425D6768	42787132
(520)	42A48C97	4288F501	4134E05E	414AAA03	41714D0E	41983883	41C8AE00	41D985C0	41E1186D	41E83630
(560)	41F67158	41DD818D	41B48F86	41664EF3	413A09D3	42122428	41113386	4317D74E	41127F32	40847B6B
(600)	4453CE00	43E082C3	43782000	4316D000	45144850	4214E0A1	42AD3E3F	422C8049	401F0104	40389EB3
(640)	4316E9DC	43170100	431643ED	4315A2E3	4314DBFA	43135541	42FF98D4	42C7C58D	41200000	404DE2AE
(680)	41148CCC	412AEA1E	4148F0C6	4198CB14	41F9E39E	42161F26	4223F348	423987CF	425CE24E	427A8538
(720)	42A33CD5	428A5E7A	413A21CC	414D89C9	416803A0	418D9430	41B0237A	41B4FC48	41E0F643	41E0E128
(760)	41F73BC1	41D86C42	41B1C03D	41655EC8	413A3579	421201D2	41113386	43153F94	4114CD46	408EC0E2
(800)	4453CF00	43E082C3	43782000	4316D000	45144A50	4216330C	42ADB853	422E4D38	40209487	403A2E29
(840)	43170DE8	43172C5A	4316673A	4315C83E	43145B45	431389FB	43104F7D	42CD23FD	41200000	40EF0ADC
(880)	41164138	412D63DB	414E9F31	419A9949	41F8E90E	421689D7	4225783C	423D5BE6	426210A5	427F29C5
(920)	42A4C628	42897382	413881C4	415188D6	41703A1E	418D148D	41887E05	41B9DE14	41ED8886	421C4985
(960)	421089F9	41DD8678	41A98E39	415B8335	413379DA	4210C2C0	41113386	43153F94	41167099	4092AFE6
(1000)	4453D000	43E082C3	43782000	4316D000	45144C50	42184832	42AE384C	42301AB5	402985A1	403F8765
(1040)	43171F48	4317343D	431672FE	4315E3AF	4315DAEE	43139F87	4310B8F7	42D2C0E2	41200000	40F26003
(1080)	4114F667	412E9991	414A6F6F	419D74F1	41FF6326	42165526	4223471C	42373A6D	4257F1A4	427483F1

1	(1200)	4453D100	43E082C3	437B2000	4316D000	45144F50	421A0C0D	42AEED0E	4231E7C4	403934ED	404274EF	
2	(1240)	4317420F	43175BAD	43169E26	4316030C	43152264	431306A0	43110B03	42D72572	41200000	40B7D065	
3	(1280)	4115D5E0	412DFE67	414EE855	41A39156	421028BA	4216434E	42228CE7	42363415	42565580	4272761F	
4	(1320)	429CD77D	42B86CE0	413DACC8	41531BA5	4177F07A	419AF538	41C12EEA	41CB1EDC	41CE7570	41D49C74	
5	(1360)	41DE3586	41C8F4BC	41AD2BEB	41722447	414A1C84	421725E7	40F54A51	4312F007	41162843	4085E43E	
6	(1400)	4453D200	43E082C3	437B2000	4316D000	45145250	42109586	42AEC0B3	4235819D	40298AAE	40463AE1	
7	(1440)	4317708D	43179D8C	4316E248	4316388E	43155821	4313F402	43119358	42E25D80	41100000	40B8C020	
8	(1480)	4116D8E5	4130B452	4153ED1E	41A93FE5	4210E2FC	4216130C	42219D84	42335D60	42512679	426C0E33	
9	(1520)	4296C598	42B48D7F	4140BAFF	41583C27	41810D0C	41A2C768	41BE00A0	41C12648	41C12C9C	41C27BF0	
10	(1560)	41CAE663	41C02AE4	41A86CDF	4177BE7A	41529502	421ABF60	40F54A51	4312F007	4117114B	408D689A	
11	(1600)	4453D300	43E082C3	437B2000	4316D000	45145450	421FE934	42B05789	4237456A	4041E44B	404DE0C8	
12	(1640)	43179414	4317C0D5	4316F0AC	43165EF1	43157763	4314102A	43122308	42E058D0	41100000	40C87199	
13	(1680)	411798F6	413179BC	415489FF	41A83F08	42107327	421622EC	4221579C	42325839	424F136C	4269A69D	
14	(1720)	4295A791	42B60DD0	414223AC	4158D720	4180C4AF	41A39958	41BFF1E5	41C059FC	41B09583	41BB4322	
15	(1760)	41C20F19	41BB84CB	41A88CE4	417F770A	C15C015F	421E42CA	40F54A51	41C1C095	4117FCE9	40919262	
16	(1800)	4453D400	43E082C3	437B2000	4316D000	45145650	42211C56	42B0E7B1	42391B03	403BF1CA	4056D255	
17	(1840)	4317AFBA	4317D85B	431724CB	431689F7	43159A8E	4314373B	43128966	42F50340	41100000	403AS741	
18	(1880)	4116D3DF	41326143	4158F5B2	4164AAE6	42110AEC	42169929	42216A81	42318614	424D103D	42667E82	
19	(1920)	4292A1B8	42B653E7	4141254C	415873CA	418CB52E	41634F40	41C43080	41B08088	41B80E83	41B44EE0	
20	(1960)	41B92EA6	41B265EC	41A31EDE	41864CD1	C16986C0	422365E7	40DA9D79	41C10095	41172F35	4089E018	
21	(2000)	4453D500	43E082C3	437B2000	4316D000	45145850	4222DF0C	42B17C59	423AE796	405F0528	4057F289	
22	(2040)	4317C76F	4317FBA8	43174419	4316A16F	4315B9D1	4314E293	4312E84E	42FFE4E0	41100000	40C26E75	
23	(2080)	411792E2	41334D5F	41594C71	41B28124	4210C9FE	42164659	42210919	42315A0A	424D0D99	4266ED30	
24	(2120)	429433ED	42B875BD	41430497	415D1216	418C2304	41AF22D8	41BF353E	41B87BE4	41B65063	41B3EF8D	
25	(2160)	41BA08D9	41B5808E	41A737C4	4188FF88	C16AF486	42264513	40DA9D79	41AC036F	4117D9A1	40B8CE3D	
26	(2200)	4453D600	43E082C3	437B2000	4316D000	45145A50	4224A119	42B215F5	423CE3E0	4073676B	40E5E28C	
27	(2240)	4317EB05	43181331	43176750	4316C4A4	4315D144	4314EE4C	4312DF54	43105C02	41100000	40B7438A	
28	(2280)	4116FB42	41346BD4	415CE7D0	41B69DD5	4210CA45	4215EACB	421FD3A4	422E9C68	4247902C	425FE634	
29	(2320)	428A4E23	42AF6487	414223C4	415FCC35	4196C3AE	41E7A4E0	41E9E9F5	41AFA3F0	41A543EC	41A4B2ED	
30	(2360)	41A76E8E	41A48A16	419A4AE9	41870E8A	C1713D60	42295ED7	40DA9D79	41AC036F	41172C28	408E0928	
31	(2400)	4453D700	43E082C3	437B2000	4316D000	45145E50	42282365	42B35A7D	424D4C53	40A83D0D	4061DC82	
32	(2440)	43183242	4318754E	4317B1AE	43170E8B	43161383	4314A086	4313392D	4310F064	41100000	40DBACEC	
33	(2480)	411A1BAC	4137C441	41EEAEF3	41B3F6CD	42106674	4215EA73	421F049A	422D9E06	42469EAD	425EEECE	
34	(2520)	428AFAA0	42B0374C	41492262	41646C93	4193731A	41AEC020	41B1579C	41A90CA8	41A41E60	41A175F0	
35	(2560)	41A62558	41A70E74	419E36C2	4189A98D	C17224C0	422C0228	40C2D747	41AC036F	411A54C0	40919CA6	
36	(2600)	4453D800	43E082C3	437B2000	4316D000	451462E0	422EA2EF	42B48AC8	4243E436	40846004	4065EA32	
37	(2640)	43187D90	43189BFE	4317FFFF	43175955	43166980	4314EEDA	431396EF	4311DE9A	41100000	40DA0A8D	
38	(2680)	411A7C8E	4139EC8D	41621792	41B691F5	42106D16	42153A2E	421E90F5	422CEAD9	42435A62	4259AAE0	
39	(2720)	4282CA2D	42A6DE00	414AE509	41698CAA	41962D0C	41B10F70	41AD5C6A	41A41D2C	419EEF13	419AE859	
40	(2760)	419AB0AE	41990730	4191E90C	C181C768	C16FEC13	4232C06E	40C2D747	41994F9D	411A895D	408CC408	
41	(2800)	4453D900	43E082C3	437B2000	4316D000	45146450	422CE11C	42B5777F	4245AFF3	403F5A0A	40665F2A	
42	(2840)	4318A939	4318E348	431832E5	4317940E	43169898	431621A6	4313CDA2	43124FDC	41100000	40B62078	
43	(2880)	411AF6E7	413D7F35	41683533	41B02A0B	42109A05	421E3D47	421E65E0	422C4B1E	4243CE5E	425AC7B8	
44	(2920)	4284DEF4	42A93A58	414D323B	4171C318	41A9D90D	41B6EE70	41A858E0	4196178C	419A1E89	419A228B	
45	(2960)	419CF720	419D5C69	4195FF84	C183B798	C1705360	42312155	40ADA65F	41994E9D	411AC89D	40780098	
46	(3000)	4453DA00	43E082C3	437B2000	4316D000	45146650	422F1E73	42B63DFE	42477B85	40232B56	406C4F06	
47	(3040)	4318D8E6	43191661	43185A10	4317B749	4316C782	431EEC43	4314045E	4312A9E1	41100000	40E5EE01	
48	(3080)	411C1DB4	413D6973	4165F019	41B87C03	4210735D	421E4313	421E02E9	422D1423	4244A4C8	426B4933	
49	(3120)	4284E248	42A96CC9	414F8908	41719654	41ADA00C	41AF5918	41A80510	41A27228	41A14680	419FBF06	
50	(3160)	419FA870	419BC335	4193E682	C1832223	C17230A0	423621E2	40ADA65F	4188A291	411BE841	408DC6A0	
51	(3200)	4453DB00	43E082C3	437B2000	4316D000	45146850	423CDAAA	42B70F3C	424943C3	401DFAB0	4071E744	
52	(3240)	431904A9	43193DB5	43188914	4317E25D	4316FA56	431E8B28	43143B09	4312F7CF	41100000	40E39074	
53	(3280)	411C71A9	413E08A4	4167BC9C	41B8174D	42104472	4214F0C3	421E5358	422C6FA6	4243DA2D	425A7369	
54	(3320)	42846806	42A9D324	41E1420C	4176990F	41A4650C	41A017A0	41A3685A	419D68AC	419D3420	419B8D52	
55	(3360)	419E5C76	419B0923	41941714	C1853D7F	C175E713	4238D6D8	409AC47E	4188A291	411C009B	4089EA20	

56	FILE	INPUT	DATA RECORDS	MAX.	READ ERROR SUMMARY	INPUT RETRIES	
57		RECS.	INPUT	SIZE	PERM ZERO B SHORT UNDEF.	#RECS. TOTAL#	
58	9	144	145	30000	0 1 0 0	1 1	
59	EOJ	DUMP STOPPED AFTER FILE	9	# OF PERMANENT READ ERRORS	0		
60	START TIME	08/15/80	10:06:03	STOP TIME	08/15/80	10:09:41	

INPUT TAPE BR31 ON MT3
DATA INPUT H9 NF 9 FL 9 1 1

Nimbus 4

CPFL 4/9

FILE	1	RECORD	1	LENGTH	3000	BYTES						
(0)	41100000	443558F3	43785000	42130000	44E2DE00	C248E23D	4311A039	425310B6	40EF8E98	4058CEC5		
(40)	43192849	43199183	4318F37D	43187FA6	4317D5E0	4316E7A9	4315ED81	43140118	41700000	407F9067	1/19/73-5/5/77	
(80)	4110582C	41258CB4	4141DE4E	4184302A	41CBF1DA	42116FB0	421AE4EA	4227D647	423A858D	424B6E8C		
(120)	426A6C2B	428693C0	412F5EE5	41463877	416A4826	4180E420	41922F0A	419A6E78	419FF306	419A7352		
(160)	41881299	C175B273	C16DF97C	C162D312	C15AD942	4236F134	409AC47E	414CD5E0	41107472	4082D193	D-40424	
(200)	41200000	443558F3	43785000	42130000	44E2FE00	C249C276	4311E8AF	425159D5	40E9EEA4	4056AE93		
(240)	43191308	43194C5A	4318A517	43182972	43177FDE	431685E7	43156890	431438B8	41700000	4081F3DA		
(280)	41102581	41240FC9	413F8A63	4183F459	41CF11D7	4211C6F0	421839FE	4227B4A8	423953CD	42492AF1	C-	
(320)	426653F1	42814683	412E687D	41423277	41648EEB	4180E6F8	41996365	41A0A280	41A351C3	41976D46		
(360)	41818479	416E6664	C1670954	C15DB585	C157AA12	42373CC1	40ADA6EF	415635F9	41105E72	4086F35D		
(400)	41300000	443558F3	43785000	42130000	44E31E00	C249206D	43122EE0	424F92C7	40EA9280	4053B7CE		
(440)	4318C4D0	4319034E	43186278	4317E2F1	43173590	43162428	4314FF05	4313A829	41700000	407AC48E		
(480)	40F8283A	41234C72	413EC7BB	4182B4F7	41CC78C5	42117A10	421AAB80	4226BC4F	4237873D	42466F99		
(520)	4261D011	427B528A	412CF596	41410130	41649945	41802128	41977FF0	419CE480	419E8833	41933854		
(560)	417C6E70	41686324	4160A685	C1582DC8	C1539AE6	423766CF	40ADA6EF	416C8875	40FBED4C	40836478		
(600)	41400000	443558F3	43785000	42130000	44E35E00	C24D8D80	4312E3ED	424C082B	40F55D5A	40516128		
(640)	431849CE	4318954C	4317E911	43176991	4316B489	4315938C	43144755	4312B214	41700000	40788D2A		
(680)	40F14F6B	4120E096	413A05C4	417E88B3	41CE2FDF	4211EED4	42186D86	42277B42	4237F0AB	4246642C		
(720)	4260B20F	427937C8	412B347C	413BE05C	415A0554	41789C3C	41A0AF60	41AA4008	41A77609	41952E42		
(760)	417AE598	4165B05E	415D3A9F	41549E02	C15084EE	42376D65	40DA9D79	41AC036F	40F70EF3	4088B532		
(800)	41500000	443558F3	43785000	42130000	44E37E00	C24E8BF8	43135803	424A4160	40F598C5	4050388F		
(840)	43182628	43185E55	4317BA17	431736B0	431679F5	4315494C	4313E98E	43122961	41700000	4073CABE		
(880)	40E71142	4120400F	413995BE	417D8AB3	41CB9EF0	4211ABCF	421B00BD	4226DB62	4236F917	424505DC		
(920)	425E7A6E	4276393E	4129CAD5	41382B19	415AC1F6	41791D29	419DF785	41A68C88	41A43746	4192D5F8		
(960)	4178B6EC	41632D48	415A6579	41510095	414E1F1A	4238149B	40DA9D79	41D88D5B	40EBCB1D	40849AF8		
(1000)	41600000	443558F3	43785000	42130000	44E39E00	C24F56AB	4313DEDF	42487AAB	40F64D27	404FC293		
(1040)	43181F8E	43183716	43178F07	431703D1	43164716	43150EAF	4313939A	4311AC68	41700000	4075E77C		
(1080)	40E8A60B	411FDEB4	4138328B	417A6B43	41C9411E	4211A7D7	421B2E78	422721E2	423731A4	4245157C		
(1120)	425E162E	42755BFD	4129F2A3	413A70E8	415771BA	417443F6	419CCC1A	41AA76BC	41A8D5C9	41950684		
(1160)	4178F8A8	41626278	4159146C	415D33A1	414C9272	423836C6	40F54A51	41F2F9C3	40ECDD3E	40866630		
(1200)	41700000	443558F3	43785000	42130000	44E38E00	C24FE1A0	431476F0	4246B400	40F595F7	40504C73		
(1240)	4317CB2B	43180FDA	43176011	4316D8C7	4316182F	4314D414	43134D47	43113829	41700000	40789686		
(1280)	40E93966	411F39F8	41366BEA	417773C1	41C7657C	4211A157	421B394A	422725C1	42372AA1	424509FE		
(1320)	425E024C	427537A8	4129A624	4138D943	41534935	416F73C6	419D3C7A	41ADC034	41AB5A0C	41950856		
(1360)	417893EE	41623592	4158FF1C	41500AF8	414C556B	42389768	40F54A51	421109F8	40EEBB89	408A2636		
(1400)	41800000	443558F3	43785000	42130000	44E3DE00	C2E02283	43151A88	4244ED6D	40EB1ACD	404F7383		
(1440)	4317B375	4317E0C8	43173506	4316B891	4315E949	43149979	431306F7	4310C9EB	41700000	40714D84		
(1480)	40D05243	411E128F	41383506	41771696	41C71443	42118734	421AED73	4226AA0D	42368A68	42445336		
(1520)	425D24D1	427434A8	4127AF79	4136D4FC	41520CEC	41703102	419EF675	41AC1E48	41A7DD03	419242DB		
(1560)	417716A0	416183DC	41587460	414F8C08	414BCF2A	42335B3D	40F54A51	42131E36	40E3BFAE	408817CF		
(1600)	41900000	443558F3	43785000	42130000	44E3FE00	C25013D0	4315C1DC	424326DF	40F45CB2	404F87EE		
(1640)	43178411	4317B5A5	431711CE	43168E73	4315BE4C	43146A97	4312C490	431058AE	41700000	4069C42F		
(1680)	40D2E768	411D82CD	4134A7D1	4176D784	41C69459	42117F2B	421AF663	4226D9FA	4236F1F6	4244E694		
(1720)	425DF3DD	427526BC	41263231	4135D7E8	415245B9	41716016	419EBF15	41ABA974	41A850C6	4193DE2D		
(1760)	41785ED1	4162CC49	41597767	41502540	414C1E48	4237FF47	41113386	42157366	40DF60C1	40841DB7		
(1800)	41A00000	443558F3	43785000	42130000	44E41E00	C24FB6DE	4316623D	4241606F	40F5A898	40507222		
(1840)	43176C61	43179649	4316E2DC	4316636E	43159351	431433E6	43127A59	42FF3280	41700000	40727754		
(1880)	40D83A35	411D089D	41325F85	41705C8A	41C02560	42113926	421AD7CA	4226B50E	4236BB03	4244B328		
(1920)	425DEACD	42755007	4126F4D7	4134A345	414C6F68	41672E6D	419A0BA5	41AF31F4	41ACA106	41949212		
(1960)	41781876	4162ACA8	4159CC4B	415DD302	414CC896	42383A50	41113386	42157366	40E23C68	408BC82F		
(2000)	41800000	443558F3	43785000	42130000	44E43E00	C24F133E	417461CF	423F99F9	40F62AC8	4051D7BE		
(2040)	43175AB0	43177F1C	4316CB83	431643CF	431575DD	43140642	43124497	42F9D8F7	41900000	4074CC92		
(2080)	40DFAF4E	411D9D95	41335BC8	4171E2D4	41C157ED	42114248	421AD83D	4226BE62	4236C12C	4244BFC6		
(2120)	425E2215	427589F8	4127BF5A	4135B2FC	414DE836	41690AA7	419A22C0	41AE0248	41AB4E80	4195760D		
(2160)	417818FB	4162AAFC	415A27EC	41617D08	414D7735	4238CD53	41113386	42157366	40E69A84	408BD302		
(2200)	41C00000	443558F3	43785000	42130000	44E47E00	C24D25B8	42161C85	423C0D50	40F35254	40530BF5		
(2240)	431721CE	431743AA	43168C96	4315FD15	43152787	4313B801	4311E6BD	42F0D08B	41900000	4076D213		
(2280)	40E1E0DC	411D9195	4132A61A	416E1B80	41BA866D	4210CB3F	421A9836	4226E646	42376B42	4245CD0C		

	(28560)	41B44AF9	41944226	41706E99	41609254	414DEF03	42275865	41134CD6	43153F94	4110E5F3	4092096D
	(28600)	42900000	44810FFD	437B9000	41200000	45132CA0	C234DBDA	429F01FA	421F97B6	40CAF0A0	404E0039
	(28640)	4315EAE2	431607B5	431554E9	4314BE18	4313F9FB	4312871E	42F66610	42B759B0	41700000	40796C79
	(28680)	40E9A971	411EE3B6	41350795	41736A0D	41C5F788	421254C0	421EFB55	4231059A	424B0D88	4260FBF1
	(28720)	42841026	429F739C	4129B722	41385776	41506D19	4169C373	419A4F10	41BD7240	41D00A26	41D39996
1	(28760)	41BF3329	419FAFE2	4187B78A	4166F1F3	41515B78	4224111A	4115A7B6	43153F94	40EE49B0	408ACCF5
2	(28800)	42910000	44810FFD	437B9000	41200000	45132EA0	C2332507	429FEF79	421E3A4C	40D401C8	404F9F91
3	(28840)	4315EAE2	4315F0F9	43154018	4314825E	4313F22B	43128337	42F47240	42B4E910	41700000	40763811
4	(28880)	40E5CB16	411EB81B	41351E1D	41744B64	41C73373	42126738	421F1C63	423180F8	424C5283	4263005C
5	(28920)	4287580E	42A38432	41293D10	4138417E	41511F78	416E3803	419B8CF5	41BD8678	41CFE3D6	41D5EB49
6	(28960)	41C4297E	41A50D5A	418C6E85	416A5366	4153A27B	42245D1A	4115A7B6	43153F94	40E9A62D	4088D779
7	(29000)	42920000	44810FFD	437B9000	41200000	451330A0	C2316CA8	42A0CE76	421CE733	40E09B40	40512CD1
8	(29040)	4315E307	4315F80F	43154930	4314825E	4313EE43	43128337	42F339F0	42B2F560	41700000	4077F0D1
9	(29080)	40E92188	411F2FC3	41360268	4176B488	41C8A699	4212CA82	421FA0FA	42323D57	424DAB9F	42650982
10	(29120)	428A9130	42A7938D	4129D463	413915EA	4152824E	416D7258	419FC0C5	41C1BC60	41D2F496	41D7B2F2
11	(29160)	41C7677B	41A9BA6B	4190E305	416DBD32	4155EE9C	42249888	4115A7B6	43153F94	40ED76E6	4088CFDE
12	(29200)	42930000	44810FFD	437B9000	41200000	451336A0	C22C3C5F	42A324B1	42193CD6	40A89388	404D0733
13	(29240)	4315DF19	4315F425	431535A6	4314A2BC	4313DEA3	4312777F	42F52D80	42B81520	41700000	408C0AFF
14	(29280)	41106959	4121ABE7	41387F37	4177539B	41C81398	4212E01F	42206394	42344EBD	4251B4F6	426A7972
15	(29320)	42914309	42AE026A	4126372A	413CC867	41540767	41E8C797	419B28CA	41C23B30	41DA4CA9	41E58A02
16	(29360)	41D613F4	41B4D401	41958827	416F0789	41530B0A	422014E3	4115A7B6	4317D74E	4110BD2F	40906F2E
17	(29400)	42940000	44810FFD	437B9000	41200000	45133AA0	C228C1D8	42A48540	42172224	406C97B0	404B2EFD
18	(29440)	4315CB76	4315E47F	4315398E	43149ED4	4313EA5B	43127B67	42F75FF0	42BD34F0	41700000	407B0364
19	(29480)	40F1AF8C	4120B189	4138FA86	417DD07F	41D865E3	4214004A	42221DE0	4236D440	4255068E	426E16D8
20	(29520)	4294E080	42B10922	412B9B2E	413C1C76	4157A21E	41749B81	41A9E09A	41CF4000	41E49710	41EE5BF8
21	(29560)	41DE49D1	41B8077D	4199AF58	416DD46B	415DB4DE	421CD2BE	4115A7B6	4317D74E	40F54A1A	4086BD5C
22	(29600)	42950000	44810FFD	437B9000	41200000	45133CA0	C227035D	42A52A94	421636AE	4069BD6E	40540CC8
23	(29640)	4315D351	4315E866	4315398E	43149ED4	4313EA5B	43128B07	42FDF6C0	42C47120	41700000	4081434B
24	(29680)	40FB897A	4121AC5A	413A49F5	417FD772	41DB4D5B	42144015	42221A82	423641A2	4253FE2E	426D7B40
25	(29720)	4296FE7A	42B6A99C	412D29C2	413DAF7D	415919DB	4175DFC8	41AB8E20	41D0E828	41E3CB13	41E8B089
26	(29760)	41D89EA3	41B80C9D	419EE81E	4179778E	415CDD42	42224410	4115A7B6	4317D74E	40FFB1F2	4088AA20
27	(29800)	42960000	44810FFD	437B9000	41200000	451340A0	C2238437	42A66311	4214B2CB	4019EA73	404CD5AE
28	(29840)	4315D73E	4315EC52	43153D76	4314AA8D	4313F22B	431296BE	42FD3B60	42C6A350	41100000	4085577B
29	(29880)	41103777	4122BD2E	413C2ABD	4184566E	41E409CA	421E29C1	4223F975	4239CEDD	4259A82D	427410AD
30	(29920)	429CE354	42BA12D3	412E9623	413FA0F8	415BF6BD	4179E27F	41B2D9DA	41DB99E0	41F19CC9	41FA8F8B
31	(29960)	41EAE87D	41C1F95E	41A1FCA4	4172D811	41530B73	421D56A2	41134CD6	4317D74E	4110814C	4088971D
32											
33	FILE	9	RECORD	53	LENGTH	125	262008BYTES				
34	(0)	441E7900	4487834C	437B9000	427D0000	44F28400	421E0316	426F6C9C	42202CED	40163887	4053A664
35	(40)	431658C5	43167D86	4315C69E	43153798	43147F1E	43133F00	4310F8E3	42D9B0C0	41100000	40A47672
36	(80)	4113A935	412976E2	41476A3D	419BE4CC	4210993A	421837AC	4227D2D2	423E77B8	425F72B1	427B3225
37	(120)	42A7E2AB	42C8C591	4137E9C4	414B4732	416C1232	418FB8A0	41CFFF00	41F74FF4	4210522F	421042C1
38	(160)	41F332A3	41C9D969	41AC37D4	4180C41C	415E8D3C	421E0C2F	41113386	43153F94	411421DC	408C2EE4
39	(200)	441E7A00	4487834C	437B9000	427D0000	44F2A400	421FC5DB	426FF7CA	4221159D	40214677	40518FEC
40	(240)	43167288	43167D86	4315CA88	43153798	43147F1E	431342E9	4310F4FC	42D8B6D0	41100000	409E1ACE
41	(280)	41131636	4128AA32	41466D0D	4199CA97	4210508F	4217CF72	42276EA9	423E5CC4	425FA1A4	427B5050
42	(320)	42A6FADB	42C68EF6	41369363	414A2760	416B44FE	418ECF78	41CBE7F5	41F1FF68	42102851	42106984
43	(360)	41F63766	41CAA031	41AAB004	417C2661	415A5371	421D4DE6	41113386	43153F94	4113784A	408A3A81
44	(400)	441E7B00	4487834C	437B9000	427D0000	44F2C400	4221883B	4270870A	42220E54	40163426	404FE1DC
45	(440)	43165E06	43167D86	4315C69E	43153798	43147B36	431346D0	4310E02D	42D933C0	41100000	409DE19A
46	(480)	4112E157	4127C2F9	41444000	4193F837	41FC6E64	42173BDF	42270836	423E36C7	425F6D3E	427AB024
47	(520)	42A4FC11	42C35367	4135BAEE	4148455B	4167361E	418835E8	41C449C5	41EE6494	42103468	4210A9FB
48	(560)	41F78539	41C8CECE	41A70CRC	417758D5	4156A4FF	421CB000	41134CD6	43153F94	4113465D	408C2140
49	(600)	441E7C00	4487834C	437B9000	427D0000	44F30400	42250B62	4271B38E	42242A53	401F41BC	4050B57F
50	(640)	43165980	4316855B	4315D25A	431533AF	43148306	43133730	4310E02D	42D97240	41100000	409649EC
51	(680)	4112274E	41269F17	4142A173	41903A86	41F40489	421649AE	4224F6E7	423A0D63	4258819B	42721084
52	(720)	429B1E85	42B9D90A	4133F39E	41468783	41656D7A	413E0108	41BD387A	41E22418	41F37EA9	41F4DFC4
53	(760)	41E0C05E	41BA62B0	419E9C60	4176A80D	415972A4	421E338C	41134CD6	43153F94	411271B8	408A27E3
54	(800)	441E7D00	4487834C	437B9000	427D0000	44F3E400	42313FEE	4276A8C7	422BE2A1	406E1094	40614EE4
55	(840)	43169B2D	4316C7CA	431612C2	4315778E	4314C648	431382D3	431181FD	42E2F84C	41200000	4091CD22
56	(880)	411185D6	412510C0	413FC405	418A9F51	41ED349C	4215D57A	42240CCA	42373781	42521FD1	4269D608
57	(920)	428F559E	42AECAFE	4132066D	414388BA	4160AA1D	417FC29B	4188AFAA	41E143F4	41F178B3	41E6A9B4
	(960)	41C733D1	41A4F2C3	413F9B59	4173E992	4160B134	422C1761	41113386	42131E36	4111DF43	408AFC65
	(1000)	441E7E00	4487834C	437B9000	427D0000	44F52400	42422844	42834DDA	423A5417	40E1CE8D	4067E4A9

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START TIME 08/13/80 19:24:07 STOP TIME 08/13/80 20:11:49

DUMP OF TAPE BOUT-1

INPUT TAPE BOUT-1 ON MT2
DATA INPUT H9 NF 104 FL 2 1 1 SR 104 1 1 SR 104 LAST 1

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(80)	FFFFFFFF	00000064	00000006	40B33333 C23C0000 40F6C4F6 3FC1FF79 41567C4B 402AFC6D 4124892C
(120)	FFFFFFFF	00000064	00000004	40B33333 C2320000 40E4682C 3F932695 414B73A8 403DE312 411FE348
(160)	FFFFFFFF	00000064	00000005	40B33333 C2280000 40CB50FF 3F46F6FC 41432EC2 4018D1C1 411C619E
(200)	FFFFFFFF	00000064	00000005	40B33333 C21E0000 40BBF835 3F40D698 413E3BFF 40132192 411A4A79
(240)	FFFFFFFF	00000064	00000005	40B33333 C2140000 40B4FBC8 3F503985 413B7DB2 3F70490D 411921C9
(280)	FFFFFFFF	00000064	00000002	40B33333 C1A00000 40AC1E18 3FA77B39 41382B3F 4013D974 4117BA83
(320)	FFFFFFFF	00000064	00000004	40B33333 00000000 40B663E4 3F4E8506 413A4B35 3FF279E2 4118A04F
(360)	FFFFFFFF	00000064	00000002	40B33333 41A00000 40BBE708 3F4CA105 413B3264 3F5A827A 411901F9
(400)	FFFFFFFF	00000064	00000001	40B33333 42140000 C3309000 C3309000 C3309000 C3309000 C3309000
(440)	FFFFFFFF	00000064	00000000	40B33333 421E0000 C3309000 C3309000 C3309000 C3309000 C3309000
(480)	FFFFFFFF	00000064	00000000	40B33333 42280000 C3309000 C3309000 C3309000 C3309000 C3309000
(520)	FFFFFFFF	00000064	00000000	40B33333 42320000 C3309000 C3309000 C3309000 C3309000 C3309000
(560)	FFFFFFFF	00000064	00000002	40B33333 423C0000 40D307E8 3E8F18BD 414103D1 3FC0AA5F 411B772E
(600)	FFFFFFFF	00000064	00000005	40B33333 42460000 40BF3C52 3F79EB02 413DFB1F 4012CEE9 411A2F11
(640)	FFFFFFFF	00000064	00000004	40B33333 42500000 40C48440 3F4D75AD 413E542B 3FCEC3FC 411A54AF
(680)	FFFFFFFF	00000065	00000000	40B33333 C2500000 C3309000 C3309000 C3309000 C3309000
(720)	FFFFFFFF	00000065	0000001C	40B33333 C2460000 40F8079A 401BA8F4 415FB10D 40E16ADF 41286CC9
(760)	FFFFFFFF	00000065	00000035	40B33333 C23C0000 40DEC597 3FFC724D 414DA6EB 405F0474 4120CDDA
(800)	FFFFFFFF	00000065	0000002E	40B33333 C2320000 40D80C36 3FC68A5B 4148252B 404A3A2E 411E7A4D
(840)	FFFFFFFF	00000065	00000028	40B33333 C2280000 40C6A885 3FA7CF36 4141DE76 402E3CA2 411BD38C
(880)	FFFFFFFF	00000065	00000019	40B33333 C21E0000 40BD6E5B 3F93CA57 413EEDC5 40203283 411A9593
(920)	FFFFFFFF	00000065	00000016	40B33333 C2140000 40BA578A 3F64E8FF 413CC142 4012BDC9 4119AA7A
(960)	FFFFFFFF	00000065	00000012	40B33333 C1A00000 40B89AE1 3F5E00F5 413B5058 4010AEA1 41190EA1
(1000)	FFFFFFFF	00000065	0000000F	40B33333 00000000 40B99E42 3F8D9537 413B2FC4 40197791 411900DE
(1040)	FFFFFFFF	00000065	0000001D	40B33333 41A00000 40B3B761 3F655E27 413A2162 40133E29 41188EA4
(1080)	FFFFFFFF	00000065	0000002F	40B33333 42140000 40B2860E 3F7EF962 413AC293 4015CA1D 4118D2C0
(1120)	FFFFFFFF	00000065	0000003C	40B33333 421E0000 40B52503 3F8E7C46 413C0BEB 402041E7 41195DDE
(1160)	FFFFFFFF	00000065	0000003A	40B33333 42280000 40B79749 3FADD7DF 413C9DAC 4026D5EF 41199B71
(1200)	FFFFFFFF	00000065	00000037	40B33333 42320000 40B55A1A 40101C58 413BC0FF 403EBFD6 41193E38
(1240)	FFFFFFFF	00000065	00000034	40B33333 423C0000 40AE0A1C 4010C7FB 413903CA 4046B360 411815FE
(1280)	FFFFFFFF	00000065	00000039	40B33333 42460000 40B32D2E 4011B813 413A1D14 405289CE 41188CD3
(1320)	FFFFFFFF	00000065	0000002F	40B33333 42500000 40BBEB2A 3FE7DFC0 413DFC59 404CA06E 411A2F96
(1360)	FFFFFFFF	00000066	00000000	40B33333 C2500000 C3309000 C3309000 C3309000 C3309000
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(1440)	FFFFFFFF	00000066	00000026	40B33333 C23C0000 40E49918 401371BE 414FCED9 406785D7 4121B704
(1480)	FFFFFFFF	00000066	0000002E	40B33333 C2320000 40DE5D73 3FBF513B 414A09D9 40414283 411F470E
(1520)	FFFFFFFF	00000066	0000002A	40B33333 C2280000 40CAF8A9 3F9B8B0E 4142F37E 4023EB2A 411C4894
(1560)	FFFFFFFF	00000066	00000014	40B33333 C21E0000 40BEE6FC 3F6B5ED7 413FA24B 40155824 411AE1D6
(1600)	FFFFFFFF	00000066	00000013	40B33333 C2140000 40B95861 3F7B6750 413CFF49 4017358E 4119C4AE
(1640)	FFFFFFFF	00000066	00000012	40B33333 C1A00000 40BAB131 3F87866E 413BDD04 401836F8 41194A0E
(1680)	FFFFFFFF	00000066	00000009	40B33333 00000000 40B94BCD 3F96884B 413B2E05 401ED7A4 41190021
(1720)	FFFFFFFF	00000066	00000014	40B33333 41A00000 40B9DBC8 3F8723C2 413B7FE2 4016061F 411922B6
(1760)	FFFFFFFF	00000066	00000021	40B33333 42140000 40B5D9C0 3F9919ED 413B6684 401D6D89 411917FE
(1800)	FFFFFFFF	00000066	00000028	40B33333 421E0000 40B62D2C 3F930005 413C2318 402643D3 411967A9
(1840)	FFFFFFFF	00000066	00000029	40B33333 42280000 40B575A8 3FCA8B38 413BFEE8 4032C018 4119585F
(1880)	FFFFFFFF	00000066	00000028	40B33333 42320000 40B0D658 40100C15 413A5036 4045ECAB 4118A26D
(1920)	FFFFFFFF	00000066	00000022	40B33333 423C0000 40AA84E1 4012E6AC 4137C494 405405E7 41178F24
(1960)	FFFFFFFF	00000066	0000002E	40B33333 42460000 40B11B0A 4014B0FE 4138F3B4 4059D6E0 41180F32
(2000)	FFFFFFFF	00000066	00000020	40B33333 42500000 40BC2C98 3FD786BF 413D7ACD 40490F6F 4119F8DC
(2040)	FFFFFFFF	00000067	00000000	40B33333 C2500000 C3309000 C3309000 C3309000 C3309000
(2080)	FFFFFFFF	00000067	00000022	40B33333 C2460000 40F3D295 401454D3 415D4DB4 40AFA7C2 41276A85
(2120)	FFFFFFFF	00000067	00000026	40B33333 C23C0000 40E5B3AD 4012AFF4 4150B6B5 4063131B 412218F7
(2160)	FFFFFFFF	00000067	0000002F	40B33333 C2320000 40E0C9DD 40110274 414B1992 403E0A69 411FB9D9
(2200)	FFFFFFFF	00000067	00000025	40B33333 C2280000 40CC919E 3F9B0E96 4143877E 4026C695 411C871A
(2240)	FFFFFFFF	00000067	0000001E	40B33333 C21E0000 40BE55CC 3F76CED0 413F9C70 40199486 411ADF5D
(2280)	FFFFFFFF	00000067	00000020	40B33333 C2140000 40B84BFC 3F852F6F 413C94F7 401A384C 411907BD

Nimbus 4

D-42971

70-025A-05J

4/10/70-5/06/77

(2200)	FFFFFFFF	0000007E	00000004	42280000	C2140000	42C0E358	411E05B0	414369B0	40A5E060	4265B58E
(2240)	FFFFFFFF	0000007E	00000005	42280000	C1A00000	42BDD77C	40FDFDFC	4139F806	404E2F20	425775E6
(2280)	FFFFFFFF	0000007E	00000000	42280000	00000000	C3309000	C3309000	C3309000	C3309000	C3309000
(2320)	FFFFFFFF	0000007E	00000000	42280000	41A00000	C3309000	C3309000	C3309000	C3309000	C3309000
(2360)	FFFFFFFF	0000007E	00000000	42280000	42140000	C3309000	C3309000	C3309000	C3309000	C3309000
(2400)	FFFFFFFF	0000007E	0000000C	42280000	421E0000	42C8B5E0	414FDD0F	41608A96	4098E462	4291A828
(2440)	FFFFFFFF	0000007E	0000000D	42280000	42280000	42BE0DC6	4148E509	41680308	407F750A	429CED8D
(2480)	FFFFFFFF	0000007E	0000000A	42280000	42320000	42B207DF	415FFB41	41631758	408031BD	42958102
(2520)	FFFFFFFF	0000007E	00000009	42280000	423C0000	42A6D036	41781FFC	4166D634	4084704C	429B27AF
(2560)	FFFFFFFF	0000007E	0000000A	42280000	42460000	4298EFDA	41877686	41660F84	4068ED70	4299FBEB
(2600)	FFFFFFFF	0000007E	00000005	42280000	42500000	42895ECC	413696E1	4161B82F	404C2D6C	42936F31

FILE	INPUT	DATA RECORDS	MAX.	READ ERROR SUMMARY				INPUT RETRIES	
	RECS.	INPUT	SIZE	PERM	ZERO B	SHORT	UNDEF.	#RECS.	TOTAL#
104	5	6	16000	0	0	0	0	0	0

EOJ

DUMP STOPPED AFTER FILE 104

OF PERMANENT READ ERRORS 0

START TIME 08/01/81 13:46:05

STOP TIME 08/01/81 13:48:40

DUMP OF TAPE RALPH

70-025A-05K

D-42972

4/10/70 - 5/6/77

INPUT TAPE RALPH ON TAO
DATA INPUT H9 NF=112 SR=1=1 SR=1=LAST=1 SR=112=1=1 SR=112=LAST=1

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(80)	00000001	00000064	00000006	40B33333	C23C0000 40F5A091 3FCB7F57 4157B3BE 4021BE3F 41250CBE
(120)	00000001	00000064	00000005	40B33333	C2320000 40E792BB 3FAA8451 414CE2C9 404971A1 41207AFF
(160)	00000001	00000064	00000005	40B33333	C2280000 40CB50FF 3F46F6FC 41432EC2 4018D1C1 411C619E
(200)	00000001	00000064	00000006	40B33333	C21E0000 40BA01FD 3F605530 413DAF2F 401B8912 411A0EFD
(240)	00000001	00000064	00000006	40B33333	C2140000 40B2D357 3F7F52BE 413A79F4 401E4D44 4118B40F
(280)	00000001	00000064	00000002	40B33333	C1A00000 40B8EF40 3F6C718B 413AD0C0 4014132A 4118D8BA
(320)	00000001	00000064	00000004	40B33333	00000000 40B7DFCC 3F56BFA9 413A7C07 3FDA6806 4118B4EF
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(400)	00000001	00000064	00000000	40B33333	42140000 C3309000 C3309000 C3309000 C3309000 C3309000
(440)	00000001	00000064	00000000	40B33333	421E0000 C3309000 C3309000 C3309000 C3309000 C3309000
(480)	00000001	00000064	00000000	40B33333	42280000 C3309000 C3309000 C3309000 C3309000 C3309000
(520)	00000001	00000064	00000000	40B33333	42320000 C3309000 C3309000 C3309000 C3309000 C3309000
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(600)	00000001	00000064	00000004	40B33333	42460000 40C48440 3F4D75AD 413E542B 3FCEC3FC 411A54AF
(640)	00000001	00000064	00000000	40B33333	42500000 C3309000 C3309000 C3309000 C3309000 C3309000
(680)	00000001	00000065	00000004	40B33333	C2500000 40E1C1F8 3FAECC86 414D8370 407946CC 4120BEDD
(720)	00000001	00000065	00000017	40B33333	C2460000 40E1A48F 40159E17 4151023D 40D1F0B4 412238DF
(760)	00000001	00000065	00000030	40B33333	C23C0000 40E92389 401B1E18 4153137B 40F7A464 41231873
(800)	00000001	00000065	00000033	40B33333	C2320000 40D4A877 40114151 4148E10C 407A4AF2 411EC9AC
(840)	00000001	00000065	00000032	40B33333	C2280000 40CB2951 3FFDE648 41443368 406100D5 411CCFBA
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(920)	00000001	00000065	00000018	40B33333	C2140000 40BA6ADF 3F62BC82 413C44AC 40194FDD 411975D8
(960)	00000001	00000065	00000013	40B33333	C1A00000 40B7D1F3 3F7ACC0A 413AEF93 401654B2 4118E5BF
(1000)	00000001	00000065	00000013	40B33333	00000000 40B4D346 3F78A489 413A909C 4016B874 4118BDA1
(1040)	00000001	00000065	00000015	40B33333	41A00000 40B4A7ED 3F81B5DF 413B1903 40153DD1 4118F740
(1080)	00000001	00000065	0000002B	40B33333	42140000 40B3E159 3F7022CE 413B0D1B 4017B879 4118F239
(1120)	00000001	00000065	00000039	40B33333	421E0000 40B724E7 3F98601F 413C0076 4022236C 41195907
(1160)	00000001	00000065	00000039	40B33333	42280000 40BA24BA 3FB4DE25 413CC7E5 402A9F0B 4119AD48
(1200)	00000001	00000065	00000037	40B33333	42320000 40B4221A 3FDE2C25 413B71FE 40414D33 41191CD8
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(1440)	00000001	00000066	00000025	40B33333	C23C0000 40E99FF8 4017C401 4150FAAD 40D5AADE 412235AE
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(1520)	00000001	00000066	00000028	40B33333	C2280000 40CCE498 3FD68A49 4144371E 404CB431 411CD14C
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(1600)	00000001	00000066	00000016	40B33333	C2140000 40BAFEB9 3F808BE4 413CA4F9 401F56A1 41199E87
(1640)	00000001	00000066	0000000E	40B33333	C1A00000 40BBC258 3F776DED 413BD434 401867BD 41194655
(1680)	00000001	00000066	0000000E	40B33333	00000000 40B65E18 3F7BB77F 413AF3D3 40172B14 4118E78B
(1720)	00000001	00000066	0000000E	40B33333	41A00000 40B8CC6B 3F94CF01 413B9D72 4021DCE3 41192F33
(1760)	00000001	00000066	0000001B	40B33333	42140000 40B76724 3F8B2EA6 413BBEDE 4013D47E 41193D52
(1800)	00000001	00000066	00000025	40B33333	421E0000 40B74CB3 3FA309AF 413C0C91 402370AA 41195E24
(1840)	00000001	00000066	00000027	40B33333	42280000 40B943DE 3FC2637E 413C95AD 4030D269 41199810
(1880)	00000001	00000066	00000027	40B33333	42320000 40B26105 3FCCC081 413ADD96 4042A7CA 4118DE26
(1920)	00000001	00000066	00000025	40B33333	423C0000 40AD7922 401254F2 4138D2AC 40549BE0 4118013E
(1960)	00000001	00000066	00000030	40B33333	42460000 40B3A3E4 4016BDCB 4139E667 406341BE 411875BA
(2000)	00000001	00000066	00000019	40B33333	42500000 40AC1570 3FFE28A3 413902E0 40550282 4118159B
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(2080)	00000001	00000067	00000015	40B33333	C2460000 40E65591 401216B3 41523989 40B1A349 4122BC61
(2120)	00000001	00000067	0000002D	40B33333	C23C0000 40ED73C6 40174F67 4155264A 40D12FEA 4123F8B1
(2160)	00000001	00000067	0000002D	40B33333	C2320000 40E0D69E 4013A715 414C2BF5 407FA726 41202DC3
(2200)	00000001	00000067	0000002A	40B33333	C2280000 40CB3985 3FFC078B 4144B6E5 406256E1 411D0747
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(2440)	00000001	00000067	00000028	40B33333	42140000	40B522A0	3FA63D7F	413B4722	401E074F	41190ABC
(2480)	00000001	00000067	00000032	40B33333	421E0000	40B6BF0F	3FB8270D	413BE4C1	402192D4	41194D53
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(2560)	00000001	00000067	00000034	40B33333	42320000	40B3F3EB	3FDF5C45	413B3FF5	403EC292	411907B4
(2600)	00000001	00000067	00000030	40B33333	423C0000	40B1D09E	4010D96E	413A41D0	404A5D68	41189C58
(2640)	00000001	00000067	00000039	40B33333	42460000	40B8A07F	4012F50A	413C7D09	40613248	41198DA8
(2680)	00000001	00000067	00000014	40B33333	42500000	40B22206	3FCC9228	413AAE8A	4046E8EC	4118CA46
(2720)	00000001	00000068	00000008	40B33333	C2500000	40E7EE94	3F605839	415624E0	4079193A	4124643E
(2760)	00000001	00000068	00000012	40B33333	C2460000	40E9BF0D	3F99947C	41540131	406266BD	41237CDF
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(2840)	00000001	00000068	00000028	40B33333	C2320000	40DE64A0	3FF3C79E	414B6E52	4055E50C	411FDDA6
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(3040)	00000001	00000068	00000012	40B33333	00000000	40B1E29E	3F80981E	413A2EF5	401BBCFF	41189460
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(3280)	00000001	00000068	00000034	40B33333	423C0000	40B2B8EB	401157B3	413AD9EF	40464DFD	4118DC9B
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(3520)	00000001	00000069	00000036	40B33333	C2320000	40E3586A	40128AEB	414CDA41	406B8CE9	41207764
(3560)	00000001	00000069	0000002A	40B33333	C2280000	40CF949D	40104B98	4145143B	405796BE	411D2EB5
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(3880)	00000001	00000069	00000031	40B33333	42280000	40B66232	3FAF7809	413C493B	402B8330	411977C5
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(4680)	00000001	0000006A	00000033	40B33333	42460000	40B2FCB4	4010C15B	413B8949	406161B8	411926AF
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(15720)	00000001	00000019	00000000	433E8000	C23C0000	C3309000	C3309000	C3309000	C3309000	C3309000
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(15800)	00000001	00000019	00000000	433E8000	C2280000	C3309000	C3309000	C3309000	C3309000	C3309000
(15840)	00000001	00000019	00000000	433E8000	C21E0000	C3309000	C3309000	C3309000	C3309000	C3309000
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(15920)	00000001	00000019	00000000	433E8000	C1A00000	C3309000	C3309000	C3309000	C3309000	C3309000
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FILE	112	RECORD	5	LENGTH	2640	BYTES				
(0)	00000001	0000007B	00000014	433E8000	C23C0000	405226AE	3F55474A	C3309000	C3309000	C3309000
(40)	00000001	0000007B	00000014	433E8000	C2320000	40530EE6	3F6B7AF0	C3309000	C3309000	C3309000
(80)	00000001	0000007B	00000008	433E8000	C2280000	404962A0	3F84B429	C3309000	C3309000	C3309000
(120)	00000001	0000007B	00000009	433E8000	C21E0000	4042A686	3F36A794	C3309000	C3309000	C3309000
(160)	00000001	0000007B	0000000E	433E8000	C2140000	403DDF01	3F253F20	C3309000	C3309000	C3309000
(200)	00000001	0000007B	00000010	433E8000	C1A00000	403C068D	3F25ACC8	C3309000	C3309000	C3309000
(240)	00000001	0000007B	00000003	433E8000	00000000	403AE3AA	3EB2E2AC	C3309000	C3309000	C3309000
(280)	00000001	0000007B	00000000	433E8000	41A00000	C3309000	C3309000	C3309000	C3309000	C3309000
(320)	00000001	0000007B	00000009	433E8000	42140000	404F840A	3F7569CC	C3309000	C3309000	C3309000
(360)	00000001	0000007B	00000012	433E8000	421E0000	4055A3E1	3F8AAED0	C3309000	C3309000	C3309000
(400)	00000001	0000007B	00000017	433E8000	42280000	4059CDC2	3FC36FE1	C3309000	C3309000	C3309000
(440)	00000001	0000007B	0000001B	433E8000	42320000	40621DB1	3FDAB865	C3309000	C3309000	C3309000
(480)	00000001	0000007B	0000001C	433E8000	423C0000	40675F8F	3F9451E9	C3309000	C3309000	C3309000
(520)	00000001	0000007B	0000001C	433E8000	42460000	406B530B	3F658E29	C3309000	C3309000	C3309000
(560)	00000001	0000007B	00000018	433E8000	42500000	406DA9B6	3F3D05EE	C3309000	C3309000	C3309000
(600)	00000001	0000007C	00000001	433E8000	C2500000	C3309000	C3309000	C3309000	C3309000	C3309000
(640)	00000001	0000007C	00000007	433E8000	C2460000	404FD9F1	3F5AE452	C3309000	C3309000	C3309000
(680)	00000001	0000007C	00000006	433E8000	C23C0000	4046C60C	3F6A8E99	C3309000	C3309000	C3309000
(720)	00000001	0000007C	00000008	433E8000	C2320000	404AFC07	3F94FC0C	C3309000	C3309000	C3309000
(760)	00000001	0000007C	00000008	433E8000	C2280000	40479418	3F5569CC	C3309000	C3309000	C3309000
(800)	00000001	0000007C	00000006	433E8000	C21E0000	403F5234	3F17C621	C3309000	C3309000	C3309000
(840)	00000001	0000007C	00000007	433E8000	C2140000	403BC2D4	3F199B22	C3309000	C3309000	C3309000
(880)	00000001	0000007C	00000009	433E8000	C1A00000	403BE5C3	3F18A32B	C3309000	C3309000	C3309000
(920)	00000001	0000007C	00000002	433E8000	00000000	403B27D3	3E82F734	C3309000	C3309000	C3309000
(960)	00000001	0000007C	00000000	433E8000	41A00000	C3309000	C3309000	C3309000	C3309000	C3309000
(1000)	00000001	0000007C	00000003	433E8000	42140000	4047419B	3F412369	C3309000	C3309000	C3309000
(1040)	00000001	0000007C	00000008	433E8000	421E0000	4058805B	3F97CB6A	C3309000	C3309000	C3309000
(1080)	00000001	0000007C	00000013	433E8000	42280000	405CCFA5	3FC9FFB8	C3309000	C3309000	C3309000
(1120)	00000001	0000007C	0000000F	433E8000	42320000	40619663	3FCF16B2	C3309000	C3309000	C3309000
(1160)	00000001	0000007C	00000015	433E8000	423C0000	4066E722	3F7C183D	C3309000	C3309000	C3309000
(1200)	00000001	0000007C	0000001C	433E8000	42460000	406B075F	3F5CCE0A	C3309000	C3309000	C3309000
(1240)	00000001	0000007C	00000006	433E8000	42500000	4067834B	3F8A8759	C3309000	C3309000	C3309000
(1280)	00000001	0000007D	00000001	433E8000	C2500000	C3309000	C3309000	C3309000	C3309000	C3309000
(1320)	00000001	0000007D	00000003	433E8000	C2460000	4054858B	3F207F04	C3309000	C3309000	C3309000
(1360)	00000001	0000007D	00000008	433E8000	C23C0000	40500794	3F51CF3C	C3309000	C3309000	C3309000
(1400)	00000001	0000007D	00000015	433E8000	C2320000	404D550D	3F6968E0	C3309000	C3309000	C3309000
(1440)	00000001	0000007D	0000000E	433E8000	C2280000	40473825	3F7D3987	C3309000	C3309000	C3309000
(1480)	00000001	0000007D	00000005	433E8000	C21E0000	403F1A26	3F5303DB	C3309000	C3309000	C3309000
(1520)	00000001	0000007D	0000000C	433E8000	C2140000	403CDEA0	3F2FE77E	C3309000	C3309000	C3309000
(1560)	00000001	0000007D	0000000C	433E8000	C1A00000	403C09E5	3F247F71	C3309000	C3309000	C3309000
(1600)	00000001	0000007D	00000008	433E8000	00000000	403A77E6	3F159EBF	C3309000	C3309000	C3309000
(1640)	00000001	0000007D	00000000	433E8000	41A00000	C3309000	C3309000	C3309000	C3309000	C3309000
(1680)	00000001	0000007D	00000005	433E8000	42140000	404980AF	3F865ADD	C3309000	C3309000	C3309000
(1720)	00000001	0000007D	0000000A	433E8000	421E0000	4053A689	3F7E119A	C3309000	C3309000	C3309000
(1760)	00000001	0000007D	00000012	433E8000	42280000	40554D13	3F82DB98	C3309000	C3309000	C3309000
(1800)	00000001	0000007D	00000010	433E8000	42320000	4061CDF8	3F97A192	C3309000	C3309000	C3309000
(1840)	00000001	0000007D	00000010	433E8000	423C0000	406B3F7C	3F60D300	C3309000	C3309000	C3309000
(1880)	00000001	0000007D	00000013	433E8000	42460000	406EB6D1	3F956923	C3309000	C3309000	C3309000
(1920)	00000001	0000007D	0000000E	433E8000	42500000	406AB514	3F791A45	C3309000	C3309000	C3309000

*Last record of
file 112
5/6/77*

(2000)	00000001	0000007E	00000077	433E8000	C24B0000	4050E2FD	3FB58D93	C3309000	C3309000	C3309000
(2040)	00000001	0000007E	00000009	433E8000	C23C0000	4050DD2C	3FFC1DB5	C3309000	C3309000	C3309000
(2080)	00000001	0000007E	00000019	433E8000	C2320000	4053F472	40106EDA	C3309000	C3309000	C3309000
(2120)	00000001	0000007E	00000008	433E8000	C2280000	40498956	3F76D1B6	C3309000	C3309000	C3309000
(2160)	00000001	0000007E	00000005	433E8000	C21E0000	4040793F	3F3D3CBC	C3309000	C3309000	C3309000
(2200)	00000001	0000007E	0000000A	433E8000	C2140000	403B582D	3F18CB72	C3309000	C3309000	C3309000
(2240)	00000001	0000007E	0000000D	433E8000	C1A00000	403CDEA9	3F2CF14B	C3309000	C3309000	C3309000
(2280)	00000001	0000007E	00000006	433E8000	00000000	403B59EF	3F2BC067	C3309000	C3309000	C3309000
(2320)	00000001	0000007E	00000000	433E8000	41A00000	C3309000	C3309000	C3309000	C3309000	C3309000
(2360)	00000001	0000007E	00000009	433E8000	42140000	404E962D	3F3691E6	C3309000	C3309000	C3309000
(2400)	00000001	0000007E	00000010	433E8000	421E0000	405400D5	3F540B5F	C3309000	C3309000	C3309000
(2440)	00000001	0000007E	00000017	433E8000	42280000	40607675	3FA6E8EE	C3309000	C3309000	C3309000
(2480)	00000001	0000007E	00000011	433E8000	42320000	40602D76	3FA5F785	C3309000	C3309000	C3309000
(2520)	00000001	0000007E	00000017	433E8000	423C0000	4068C8C4	3FB4A4AF	C3309000	C3309000	C3309000
(2560)	00000001	0000007E	00000010	433E8000	42460000	406D2CBF	3FBF0DA0	C3309000	C3309000	C3309000
(2600)	00000001	0000007E	00000013	433E8000	42500000	4067E782	3F6A3DA6	C3309000	C3309000	C3309000

FILE	INPUT	DATA RECORDS	MAX.	READ ERROR SUMMARY				INPUT RETRIES	
	RECS.	INPUT	SIZE	PERM	ZERO B	SHORT	UNDEF.	#RECS.	TOTAL#
112	5	6	16000	0	0	0	0	0	0

EOJ DUMP STOPPED AFTER FILE 112 # OF PERMANENT READ ERRORS 0

START TIME 05/29/86 13:53:42 STOP TIME 05/29/86 13:55:59