

#495

PIONEER 11
DOPPLER TRACKING DATA SATURN ENCO
75-019A-09B

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 This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system.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

PIONEER 11

DOPPLER TRACKING DATA SATURN ENCOUNTER

73-019A-09B PSCM-00008

This data set has been restored. There was originally one 7-track, 800 BPI tape written in Binary with BCD headers, there is one restored tape written in Binary with ASCII headers. The DR tape is a 3480 cartridge and the DS tape is 9-track, 6250 BPI. The original tape was created on a 1108 computer and the restored tape was created on an IBM 9021 computer. The DR and DS numbers along with the corresponding D number are as follows:

DR#	DS#	D#	FILES	TIME SPAN
-----	-----	-----	-----	-----
DR004916	DS004916	D042424	1	08/01/79 - 09/18/79

REQ. AGENT

BER

RD. NO

V0082

ACQ. AGENT

WSC

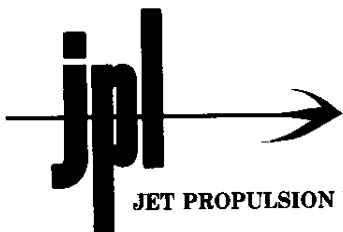
PIONEER 11

73-019A-09B

DOPPLER TRACKING DATA SATURN ENCOUNTER

This data set consists of Doppler Tracking data on tape. This tape was fortran written on a Univac 1108, it is 7 track and 800 bpi with a 36 bit word length. The tape has one file with BCD header records followed by binary data records. The format is on the following pages.

<u>D#</u>	<u>C#</u>	<u>TIME SPAN</u>
D-42424	C-21536	8/01/79-9/18/79



California Institute of Technology • 4800 Oak Grove Drive, Pasadena, California 91103

20 October 1980

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

Dear Mr. Post:

We are mailing you a magnetic tape containing the Pioneer 11 Doppler tracking data used by the Pioneer 10/11 Celestial Mechanics experimenters. These data were taken near Saturn and covered the time span 1 August 1979-18 September 1979. The data tape was Fortran written on a UNIVAC 1108 7 track unit and has 800 BPI with a 36 bit word length. Please send us a replacement tape.

Some explanatory notes are enclosed as follows:

1. A listing of the data tape and a detailed description of its format.
2. One copy of TR 32-1527 defining the S-band, two-way and three-way Doppler observables found on the data tape. See pages 19-22, 46-50, 72-75. Since the Pioneer 11 antenna is rotating and is right-hand circularly polarized, the observables on the data tape have already been adjusted for the effect of spacecraft spin on the observable by

$$\Delta f = \omega (.034766213) \text{ Hertz,}$$

where ω is the spacecraft spin rate in revolutions per minute. This correction was verified by ground tests and with the spacecraft itself. Corrections for our time period 1 August 1979 - 18 September 1979 varied between .27048 Hz and .27143 Hz. Doppler biases of this size have a negligible effect on the Saturn gravity solution provided that either a constant Doppler bias or a conic planetary ephemeris correction is included in the solution. The use of an erroneous value of the bias could, however, introduce an error in the range rate correction to the planetary ephemeris.

3. One copy of TM 391-412 by T.D. Moyer combining the equations for computing Doppler observables.

Ralph Post

-2-

4. A draft of our results of the Pioneer 11 Celestial Mechanics Experiment.
5. A list of Deep Space Net Tracking station locations.
6. Trajectory coordinates sufficient to start a least squares adjustment.
7. The Pioneer 11 spacecraft was perturbed by orientation maneuvers at the following times (UTC):

4 August 1979	22:30
8 August 1979	15:58, 19:29
12 August 1979	16:14
16 August 1979	15:00, 19:55
17 August 1979	00:15
20 August 1979	09:31
28 August 1979	13:37, 17:47
4 September 1979	13:38

8. A summary of the data used in our Pioneer 11 Celestial Mechanics Experiment.
9. Calibrations should be made to adjust for station reference frequency biases in the 3-way Doppler data as follows:

<u>Transmitting Station</u>	<u>Receiving Station</u>	<u>Time Interval</u>	<u>Bias (Hz)</u>
62	63	1 Sept 79 10:40:00 to 1 Sept 79 18:00:00	.0194
62	63	2 Sept 79 10:24:00 to 2 Sept 79 16:15:00	.0194
62	63	3 Sept 79 10:20:00 to 3 Sept 79 12:00:00	.0194
62	14	2 Sept 79 16:16:00 to 2 Sept 79 18:55:00	.0180
12	14	2 Sept 79 19:00:00 to 3 Sept 79 00:13:00	-.0028

The tabulated bias should be subtracted from the observed value of the data. Biases for all other station pairs were negligible.

10. The velocity perturbations were almost entirely along the earth line and usually had a magnitude of less than 5 mm/sec. The tracking data provided is S-band, two-way Doppler data. Each data record contains both the observed Doppler (F) and the transmitter frequency (f_q) as defined in the enclosed document TM 391-412.

The effect of solar pressures due primarily to the parabolic antenna and RTG's can be approximated by an acceleration in the sun-spacecraft direction

$$\ddot{r}_R \text{ (km/sec}^2\text{)} = K/r^2$$

where r = sun-spacecraft distance (km) and $K = 3.938 \times 10^6 \text{ km}^3/\text{sec}^2$.

Ralph Post

-3-

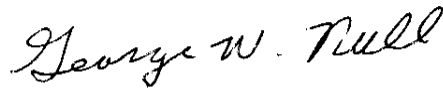
At a distance of almost 10 AU to Saturn, the error in the approximation of acceleration $\ddot{r}_R$ is negligible as is the normal acceleration to the radial line.

Please feel free to contact us should any other questions arise.

Sincerely,



Eunice L. Lau
Senior Engineer



George W. Null
Pioneer Co-Experimenter

ELL/GWN:ac
Encs.

354-4209

Deep Space Net Tracking Station Locations

<u>DSS</u>	<u>Distance off Earth's Spin Axis (km)</u>	<u>Geocentric Longitude (deg East)</u>	<u>Height from Equatorial Plane (km)</u>
11	5206.3399	243.150605	3673.7640
12	5212.0541	243.194532	3665.6298
14	5203.9969	243.110486	3677.0520
42	5205.3515	148.981286	-3674.5833
43	5205.2510	148.981288	-3674.7503
44	5193.9808	148.977809	-3691.3483
51	5742.9440	27.685406	-2768.7440
61	4862.6081	355.750990	4114.8821
62	4860.8178	355.632184	4116.9051
63	4862.4510	355.752001	4115.1081

Trajectory Initial Conditions

Epoch of initial conditions

(ET) 1979 Aug 20 12:0:0000

Saturn Barycentric Space Fixed Earth-Mean Equator of 1950.0 Coordinate
System (cartesian coordinates)

X	.893599828874375499D7
Y	-.488704254917928699D7
Z	.530831430886169299D6
DX	-.757973708073312099D1
DY	.442913994848168599D1
DZ	-.499424096385243699D0

Data used in Pioneer 11 Celestial Mechanics Experiment

STATION ID	DATA TYPE BAND	TIME OF EARLIEST POINT	TIME OF LATEST POINT	TOTAL POINTS
DSN-63	F2 -S	20 AUG 79 13:59:30.00	04 SEP 79 12:35:30.00	56
DSN-44	F2 -S	21 AUG 79 06:16:30.00	04 SEP 79 06:24:30.00	184
DSN-62	F2 -S	21 AUG 79 11:16:30.00	03 SEP 79 16:11:30.00	563
DSN-12	F2 -S	21 AUG 79 22:09:30.00	04 SEP 79 00:10:30.00	727
DSN-14	F2 -S	23 AUG 79 21:56:30.00	24 AUG 79 01:01:30.00	5
DSN-43	F3 -S	01 SEP 79 02:53:30.00	03 SEP 79 07:01:30.00	733
DSN-63	F3 -S	01 SEP 79 07:03:30.00	03 SEP 79 11:59:30.00	1718
DSN-14	F3 -S	02 SEP 79 16:16:30.00	03 SEP 79 00:12:30.00	465

DSC#475
173-019A-09B

Our data tape has 7 additional 2030 Key 1 groups between the 103 Key 1 group and the 107 Key 1 group. These 2030 Key 1 groups are the Ramp Data Groups described on page 14-9 and 14-10 except that the frequencies in words 5,6 and 7,8 are now DCO frequencies. Our data analysis used these Ramp Data Groups with DCO frequencies rather than the Ramp Data Groups with VCO frequencies found later on the tape.

FILE 20: ODE TRACKING DATA FILE

(SIP Output Tracking file is same format)

1. General Description and Contents

File 20 is written by the Orbit Data Editor (ODE) in Type-66 format and is converted to LGFIO format by program T66TOLGF.

2. Volume

The size of File 20 can be estimated from the following expression:

$$T = \left[\frac{m*240 + n*128 + 2}{1792} \right] + 1$$

where

T = file size in tracks

m = number of Orbit Data logical records

n = number of Ramp logical records

3. Organization

File 20 must be in LGFIO format.

4. Program Usage

Subprogram Writing

ODF-PROCESS

ODF-RECOMP

Subroutines Reading

BEGIN/REGRES

READTD/REGRES

5. Detailed Description

File Identification Group

Header Record

Word Number	Type	Contents	Description
1	I	11	Size (in integer words) of largest data record plus 1.
2	I	4	Identifies content of data records as BCD.
3	I	1	Indicates group contains one data record.
4	I	101	Group Key 1.
5	I	0	Group Key 2.

One Record which Identifies the File

Word Number	Type	Contents/Description
1-3	BCD	"SPACECRAFT ID = nn" where nn is the space-craft number input by the user in the OD-FILE statement.
4-8	BCD	"Y,M,D,H,M = yy, mm, dd, hh, mm, ll08" for identifying the time and system the file was written.
9-10	BCD	"ODE = vv.v" for identifying the version of ODE that created the file.

Fingerprints Group

Header Record

Word Number	Type	Contents	Description
1	I	8	Size (in integer words) of largest data record plus 1.
2	I	4	Identifies content of data records as BCD.
3	I	0	Indicates group may contain more than one data record.
4	I	102	Group Key 1.
5	I	0	Group Key 2.

One or More Records of BCD

Word Number	Type	Contents/Description
1	BCD	IDRSPS
2	BCD	Date when file was written - MMDDYY
3	BCD	Time when file was written - HHMMSS
4	BCD	Name of program which wrote this file (right justified).
5	BCD	Version of the above program (left justified).
6	BCD	Date when above program was mapped - MMDDYY.
7	BCD	Time when above program was mapped - HHMMSS.

User Label Group

(This group is optional)

Header Record

Word Number	Type	Contents	Description
1	I	15	Size (in integer words) of largest data record plus 1.
2	I	4	Identifies content of data records as BCD.
3	I	0	Indicates group may contain more than one data record.
4	I	103	Group Key 1.
5	I	0	Group Key 2.

One or More Records of BCD Descriptive Text

These include the text generated by the ODE and input to the ODE by the user via the LABEL parameter in the OD-FILE statement. The text generated by the ODE describes when the file was created or updated. The text input by the user is any comments the user would have concerning the circumstances under which the file was created.

Word Number	Type	Contents/Description
1-14	BCD	14 BCD words of label information.

Header Record (cont.)

Word Number	Type	Contents	Description
4	I	109	Group Key 1
5	I	0	Group Key 2

A Series of Records (possibly void):

May contain up to 24 Orbit Data logical records of 5 double precision words (or 10 integer words). An Orbit Data logical record is defined below.

Word Number	Type	Contents/Description
1,2	DP	Time of observation; seconds after January 1, 1950 0:0:0.0
3,4	DP	1.aaaaaaabcddeeffgD+6 where aaaaaaa = compression time in hundredths of seconds for radio metric doppler data or VLBI narrowband data = 0 for DRVID = ranging components for range data = 0 for angle data = modulus in nanoseconds for VLBI wideband data b = radio band indicator. 1 = S, 2 = X, 3 = K c = tracking network indicator. 1 = DSN, 2 = MFSN, 3 = ETR dd = transmitting station number for radio metric data = first receiving station number for VLBI data ee = receiving station number for radio metric data = second receiving station number for VLBI data

Word Number	Type	Contents/Description
		ff = data-type indicator 01 = narrowband spacecraft VLBI doppler mode 02 = narrowband spacecraft VLBI phase mode 03 = narrowband quasar VLBI doppler mode 04 = narrowband quasar VLBI phase mode 05 = wideband spacecraft VLBI 06 = wideband quasar VLBI 11 = one-way doppler (F1) 12 = two-way doppler (F2) 13 = three-way doppler (F3) 14 = three-way coherent doppler (F3C) 24 = DRVID using TAU ranging (DTAU) 25 = DRVID using MU ranging (DMU) 26 = DRVID using PLOP ranging (DPLOP) 27 = DRVID using PLOP2 ranging (DPLOP2) 28 = DRVID using MU2 ranging (DMU2) 31 = ETR range (ETR) 32 = MARK1 range (MARK1) 33 = MARK1A range (MARK1A) 34 = TAU range (TAU) 35 = MU range (MU) 36 = planetary operational discrete spectrum range (PLOP) 37 = planetary operational continuous spectrum range (PLOP2) 38 = planetary R&D range (MU2) 51 = azimuth (AZ) 52 = elevation (EL) 53 = hour angle (HA) 54 = declination (DEC) 55 = X30 (X30) 56 = Y30 (Y30) 57 = X85 (X85) 58 = Y85 (Y85)

Orbit Data Identifier Group

Header Record

Word Number	Type	Contents	Description
1	I	6	Size (in integer words) of largest data record plus 1
2	I	4	Identifies content of data records as BCD.
3	I	1	Indicates group contains one data record
4	I	107	Group Key 1
5	I	0	Group Key 2

One Record which Identifies the Various Fields and Their Positions within the Orbit Data Record

Word Number	Type	Contents/Description
1-5	BCD	TIMTAGIDWORDOBSVBLFREQCYPASSID

Orbit Data Group

Header Record

Word Number	Type	Contents	Description
1	I	241	Size (in integer words) of largest data record plus 1
2	I	2	Identifies content of data records as DP
3	I	0	Indicates group may contain more than one data record

Word Number	Type	Contents/Description
5,6	DP	g = 0 (not used) One of the following i) doppler observable ii) DRVID observable iii) range observable iv) angle observable v) VLBI observable
7,8	DP	Reference frequency for doppler, DRVID and range data, 0 for angle data, where reference frequency is defined as the frequency of the i) <u>Transponder</u> if doppler ground mode is one-way ii) <u>Transmitter</u> (if unramped) or <u>Receiver</u> (if ramped) if doppler ground mode is two-way, three-way, or three-way coherent. Reference frequency is taken at light corrected time of data point.
9,10	DP	1.aaaabccdeeeeffggD+16 where - aaaa = Pass identification for radio metric data = Quasar identification for VLBI quasar data - b = Split pass identification - cc = Spacecraft identification - d = Ramp indicator flag (2 = ramped) - eeee = 10 times (204.8 plus power/noise ratio) for range or DRVID data = 10 times transmitting station number plus transmitting station network indicator for VLBI data - ff = highest component if range data - gg = 0 (not used)

The logical data records are ordered in increasing order of time/net/station/data type/band.

Ramp Data Identifier Group

Header Record

Word Number	Type	Contents	Description
1	I	129	Maximum number of single precision words in data record plus one
2	I	2	Double precision group
3	I	1	There is one record
4	I	2030	Group identifier
5	I	0	Group identifier

One Record which Identifies the Ramp Conversion Factors

Word Number	Type	Description
1,2	DP	Conversion factor used in $f_{vco} = (f_{dco} + \text{CONST})/\text{DNOM}$
3,4	DP	Conversion factor used in $\dot{f}_{vco} = \dot{f}_{dco}/\text{DNOM}$

Ramp Data Group

Header Record

Word Number	Type	Contents	Description
1	I	129	Maximum number of single precision words in data record plus one
2	I	2	Double precision group
3	I	0	There is more than one data record
4	I	2030	Group identifier
5	I	DSN Station Number	Group identifier

A Series of Records (possibly void):

May contain up to 16 Ramp Data logical records of 4 double precision words (or 8 integer words). A Ramp Data logical record is defined below.

Word Number	Type	Description
1,2	DP	Beginning time of ramp in seconds past 0 ^h 1 January 1950
3,4	DP	End time of ramp in seconds past past 0 ^h 1 January 1950
5,6	DP	VCO transmitter frequency in Hz at T ₀
7,8	DP	VCO frequency rate to be applied between T ₀ and T _f , in Hz/sec.

Orbit Data Summary Group

Header Record

Word Number	Type	Contents	Description
1	I	9	Size (in integer words) of largest data record plus 1.
2	I	2	Identifies content of data records as DP.
3	I	0	Indicates group may contain more than one data record.
4	I	105	Group Key 1.
5	I	0	Group Key 2.

A Record For Each Data-Type that Exists For Each Station/Band

Word Number	Type	Contents/Description
1,2	DP	1.0000000bc00eeffD+16 where b = radio band indicator (See Orbit Data Group) c = tracking network indicator (See Orbit Data Group) ee = receiving station number ff = data-type indicator (See Orbit Data Group)
4,5	DP	Number of points
6,7	DP	Time of earliest point Seconds after January 1, 1950
8,9	DP	Time of latest point 0:0:0.0

Control Statement Group

Header Record

Word Number	Type	Contents	Description
1	I	15	Size (in integer words) of largest data record plus 1
2	I	4	Identifies content of data records as BCD.
3	I	0	Indicates group may contain more than one data record
4	I	111	Group Key 1
5	I	0	Group Key 2

BCD Card/Line Images of All the ODE Control Statements

Word Number	Type	Contents/Description
1-14	BCD	14 words of BCD control statements

End-of-File Group

(For Type 66 File 20 Only)

Header Record

Word Number	Type	Contents	Description
1	I	1	Size (in integer words) of largest data record plus one
2	I	5	Identifies contents of group as empty
3	I	0	Record number indicator
4	I	0	Group Key 1
5	I	0	Group Key 2

REPACKED OCTAL DUMP OF DS004916

DS004916
contains bad characters

FILE 1 RECORD 1 168 BYTES

(0)	000005010001	000000000013	000000000004	000000000001	000000000145	000000000000	000000000165	000005010001
(48)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(96)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(144)	000000000000	000000000000	000000000000	000000000000				

REPACKED OCTAL DUMP OF DS004916

FILE 1 RECORD 2 168 BYTES

(0)	000013010001	000000000012	302506101210	270613310516	114462640505	365622561156	155622446771	566071566265
(48)	566164566463	560561616070	050524111244	337533050505	220771057631	000013010001	000000000000	000000000000
(96)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(144)	000000000000	000000000000	000000000000	000000000000				

REPACKED OCTAL DUMP OF DS004916

FILE 1 RECORD 834 168 BYTES

(0)	000024010002	203667707227	060000000000	206643605745	111752756000	575636731705	262335014656	203151735526
(48)	000000000000	206742155631	166076000000	203667707270	660000000000	206643605745	111752756000	575637144363
(96)	014434562606	203151735526	000000000000	206742155631	166076000000	504331313350	000024010002	000000000000
(144)	000000000000	000000000000	000000000000	000000000000				

REPACKED OCTAL DUMP OF DS004916

FILE 1 RECORD 835 504 BYTES

(0)	000121010001	000000000050	203667707303	120000000000	206643605745	111752756000	575637213646	371151212016
(48)	203151735526	000000000000	206742155631	166076000000	203667707315	360000000000	206643605745	111752756000
(96)	575637261433	231122167156	203151735526	000000000000	206742155631	166076000000	203667707327	620000000000
(144)	206643605745	111752756000	575637325371	237273570526	203151735526	000000000000	206742155631	166076000000
(192)	203667707343	760000000000	206643605745	111752756000	575637375471	140240234126	203151735526	000000000000
(240)	206742155631	166076000000	203667707356	220000000000	206643605745	111752756000	575637435341	765176013506
(288)	203151735526	000000000000	206742155631	166076000000	203667707370	460000000000	206643605745	111752756000
(336)	575637473155	707674075556	203151735526	000000000000	206742155631	166076000000	203667707415	160000000000
(384)	206643605745	111752756000	575637560072	431133607636	203151735526	000000000000	206742155631	166076000000
(432)	203667707427	420000000000	206643605745	111752756000	575637607046	634032746036	203151735526	000000000000
(480)	206742155631	166076000000	632112544556	000121010001				

REPACKED OCTAL DUMP OF DS004916

FILE 1 RECORD 836 168 BYTES

(0)	000003010001	000000000001	000000000000	000000000000	000000000001	000003010001	000000000000	000000000000
(48)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(96)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(144)	000000000000	000000000000	000000000000	000000000000				

REPACKED OCTAL DUMP OF DS004916

FILE 1 RECORD 880 168 BYTES

(0)	000017010001	000000000016	111221123112	510623142112	305611273316	115627062314	124075050505	050505050505
(48)	050505050505	050505050505	050505050505	050505050505	050505050505	050505050505	050505050505	050505050505
(96)	147357471360	000017010001	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(144)	000000000000	000000000000	000000000000	000000000000				

DUMP OF TAPE B424OUT

INPUT TAPE B424OUT ON MT5

DATA INPUT 07 NF 1 FL 1 50 3 SR 1 B34 4

FILE	1 RECORD	1 LENGTH	168BYTES
(0)	000005010001	000000000013	000000000004
(48)	000000000000	000000000000	000000000000
(96)	000000000000	000000000000	000000000000
(144)	000000000000	000000000000	000000000000

FILE	1 RECORD	2 LENGTH	168BYTES
(0)	000013010001	000000000012	302506101210
(48)	566164566463	560561616970	050524111244
(96)	000000000000	000000000000	000000000000
(144)	000000000000	000000000000	000000000000

FILE	1 RECORD	3 LENGTH	168BYTES
(0)	000005010001	000000000010	000000000004
(48)	000000000000	000000000000	000000000000
(96)	000000000000	000000000000	000000000000
(144)	000000000000	000000000000	000000000000

FILE	1 RECORD	4 LENGTH	168BYTES
(0)	000010010001	000000000007	161127302530
(48)	606663666060	626662735474	000010010001
(96)	000000000000	000000000000	000000000000
(144)	000000000000	000000000000	000000000000

FILE	1 RECORD	5 LENGTH	168BYTES
(0)	000002010001	000000000001	050505050560
(48)	000000000000	000000000000	000000000000
(96)	000000000000	000000000000	000000000000
(144)	000000000000	000000000000	000000000000

FILE	1 RECORD	6 LENGTH	168BYTES
(0)	000005010001	000000000017	000000000004
(48)	000000000000	000000000000	000000000000
(96)	000000000000	000000000000	000000000000
(144)	000000000000	000000000000	000000000000

FILE	1 RECORD	7 LENGTH	168BYTES
(0)	000017010001	000000000016	302506101210
(48)	566164566463	560561616970	050524111244
(96)	463415322261	000017010001	000000000000
(144)	000000000000	000000000000	000000000000

FILE	1 RECORD	8 LENGTH	168BYTES
(0)	000002010001	000000000001	050505050560
(48)	000000000000	000000000000	000000000000
(96)	000000000000	000000000000	000000000000
(144)	000000000000	000000000000	000000000000

FILE	1 RECORD	9 LENGTH	168BYTES
(0)	000005010001	000000000020	000000000002
(48)	000000000000	000000000000	000000000000
(96)	000000000000	000000000000	000000000000
(144)	000000000000	000000000000	000000000000

FILE	1 RECORD	10 LENGTH	168BYTES
(0)	000011010001	000000000004	203667630662
(48)	000000000000	000000000000	613631421274
(96)	000000000000	000000000000	000000000000
(144)	000000000000	000000000000	000000000000

```

FILE          1 RECORD          21 LENGTH          168 BYTES
( 0)          000011010001 0000000000004 203667630662 000000010100 203667632125 000000000000 203667632125 000000000000

```

(96) 000000000000 000000000000 000000000000 000000000000 000000000000 000000000000 000000000000 000000000000 000000000000
(144) 000000000000 000000000000 000000000000 000000000000 000000000000 000000000000 000000000000 000000000000 000000000000

FILE	INPUT	DATA RECORDS	MAX.	READ ERROR SUMMARY				INPUT ERRORS	
	RECS.	INPUT	SIZE	PERM	ZERO	SHORT	UNDEF.	RECS.	TOTAL
1	889	889	1344	0	0	0	0	0	0

EOJ DUMP STOPPED AFTER FILE 1 # OF PERMANENT READ ERRORS 0

START TIME 06/30/81 19:24:06 STOP TIME 06/30/81 19:25:23