[redacted]

#619

VOYAGER 1 & 2

SATURN ENCOUNTER DATA

77-084A-02F

77-076A-02D

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1. INTRODUCTION:

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 This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system.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

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

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

2. ERRATA/CHANGE LOG:

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

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

Version	Date	Person	Page	Description of Change
01				
02				

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

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

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

4. CATALOG MATERIALS:

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

b. Core Catalog Materials

VOYAGER 1

VOYAGER 2

SATURN ENCOUNTER DATA ON MAGTAPE

77-084A-02F PSPA-00049

77-076A-02D PSPA-00123

THESE DATA SETS HAVE BEEN RESTORED. ORIGINALLY THERE WERE 14 VOYAGER 1 AND 6 VOYAGER 2 9-TRACK, 1600 BPI TAPES WRITTEN IN BINARY. THERE ARE 5 VOYAGER 1 AND 2 VOYAGER 2 RESTORED TAPES. THE DR TAPES ARE 3480 CARTRIDGES AND THE DS TAPES ARE 9-TRACK, 6250 BPI. THE TAPES WERE CREATED ON A UNIVAC 1108 COMPUTER. THE DR AND DS NUMBERS ALONG WITH THE CORRESPONDING D NUMBERS AND THE TIME SPANS ARE AS FOLLOWS:

VOYAGER 1 77-084A-02F

DR#	DS#	D#	FILES	TIME SPAN
DR03523	DS03523	D59517	1	10/21/80 - 10/27/80
		D59518	2	10/27/80 - 10/31/80
		D59519	3	10/31/80 - 11/04/80
DR03524	DS03524	D59520	1	11/04/80 - 11/08/80
		D59521	2	11/08/80 - 11/09/80
		D59522	3	11/09/80 - 11/10/80
DR03525	DS03525	D59523	1	11/10/80 - 11/11/80
		D59524	2	11/11/80 - 11/12/80
		D59525	3	11/12/80 - 11/12/80
DR03526	DS03526	D59526	1	11/11/80 - 11/17/80
		D59527	2	11/17/80 - 11/19/80
		D59528	3	11/19/80 - 11/21/80
DR03527	DS03527	D59529	1	11/21/80 - 11/28/80
		D59530	2	11/28/80 - 12/05/80

VOYAGER 2 77-076A-02D

DR03551	DS03551	D59511	1	08/07/81 - 08/16/81
		D59512	2	08/14/81 - 08/21/81
		D59513	3	08/21/81 - 08/28/81
DR03552	DS03552	D59514	1	08/25/81 - 08/26/81
		D59515	2	08/28/81 - 09/02/81
		D59516	3	09/02/81 - 09/16/81

REQ. AGENT	RAND NO.	ACQ. AGENT
RSH	V0220	WSC

VOYAGER 1 & 2

SATURN ENCOUNTER DATA

77-084A-02F

77-076A-02D

Both data sets were created on a UNIVAC 1108 computer. The Voyager 1 data set consists of 14 tapes, and the Voyager 2 data set consists of 6 tapes. All the tapes are 9-track, 1600 bpi, binary, and contain only one file of data. The D and C numbers with the corresponding time spans are as follows:

VOYAGER 1

D#	C#	TIME SPAN
D-59517	C-23560	10/21/80 - 10/27/80
D-59518	C-23561	10/27/80 - 10/31/80
D-59519	C-23562	10/31/80 - 11/04/80
D-59520	C-23563	11/04/80 - 11/08/80
D-59521	C-23564	11/08/80 - 11/09/80
D-59522	C-23565	11/09/80 - 11/10/80
D-59523	C-23566	11/10/80 - 11/11/80
D-59524	C-23567	11/11/80 - 11/12/80
D-59525	C-23568	11/12/80 - 11/12/80*
D-59526	C-23569	11/11/80 - 11/17/80
D-59527	C-23570	11/17/80 - 11/19/80
D-59528	C-23571	11/19/80 - 11/21/80
D-59529	C-23572	11/21/80 - 11/28/80
D-59530	C-23573	11/28/80 - 12/05/80

VOYAGER 2

D#	C#	TIME SPAN
D-59511	C-23554	08/07/81 - 08/16/81
D-59512	C-23555	08/14/81 - 08/21/81
D-59513	C-23556	08/21/81 - 08/28/81
D-59514	C-23557	08/25/81 - 08/26/81*
D-59515	C-23558	08/28/81 - 09/02/81
D-59516	C-23559	09/02/81 - 09/18/81

* Tape contains the data for the actual encounter.

JET PROPULSION LABORATORY

INTEROFFICE MEMO
3393-83-109

TO: R. W. Post

8 July 1983

FROM: J. D. Anderson R.E. for J.D.A.

SUBJECT: Submission of Celestial Mechanics Data to NSSDC (Draft Cover Letter)

Magnetic tapes are enclosed containing Voyager 1 and Voyager 2 reduced data from the celestial mechanics experiments conducted by the Radio Science Team, Dr. J. D. Anderson (JPL), cognizant team member. These data cover the two Saturn encounters by Voyager 1 on 12 November 1980 and Voyager 2 on 26 August 1981. Celestial mechanics experiments were not conducted at Jupiter and hence data are unavailable.

The magnetic tapes were written in a standard 9-track 1600 BPI mode. The data tape format is that of the Archival Tracking Data File (ATDF) of the JPL Navigation Systems Section (Dr. J. F. Jordon, Jr., Manager) and is mission independent.

Some of the Doppler data were taken while the ground transmitter frequency was changing at a controlled linear rate. Necessary information for data analysis are included in the ramped transmitter groups on the data tapes. All Doppler data are in the standard JPL format. A description of these data can be found in JPL TM 391-412 by T. D. Moyer.

Range data were taken by the Planetary Ranging Assembly (PRA) of the Deep Space Net (DSN). They are in the same format as the range data taken for the Viking mission and submitted previously by the Viking Radio Science Team to the NSSDC. Range data on the Voyager reduced ATDF were calibrated by the Voyager Navigation Team during the two Saturn encounters. Because of limited resources the Voyager Radio Science Team did not perform these calibrations as in the case of Viking, but the procedures applied by the Navigation Team were similar. Also, range data were fundamental to the celestial mechanics experiment on Viking, but not on Voyager. Results on gravitational parameters and satellite masses at Saturn can be obtained from the Doppler data alone. Range data are included for purposes of satellite and planetary ephemeris improvement, a secondary scientific objective of the Voyager Team. Hence, the data records for Voyager ranging are not as detailed as for Viking.

Unlike previous missions, the one-way Doppler data (f_1) in the data records is referred to an on-board Ultra Stable Oscillator (USO), an oven-controlled crystal oscillator built by Frequency Electronics and flown on both Voyagers as a radio science instrument. We have found that the one-way data provide essential information for the determination of satellite masses in regions where two-way data (f_2) or three-way (f_3) were not taken because of other mission priorities. In addition, one-way data are provided for purposes of measuring the gravitational red-shift at Saturn.

JDA:PE:dd

LOCATING START AND STOP TIMES ON VOYAGER 2

SATURN ENCOUNTER DATA

TO START WITH, THERE ARE 28 LOGICAL RECORDS PER PHYSICAL RECORD. EACH LOGICAL RECORD HAS 64 36-BIT WORDS. THE FIRST 2 LOGICAL RECORDS OF THE FIRST PHYSICAL RECORD ARE THE IDENTIFICATION RECORD AND THE TRANSMITTER TRANSPONDER RECORD. THE NEXT RECORD IS THE TRACKING DATA RECORD. IN ORDER TO FIND THE START TIME IN THIS RECORD YOU MUST OCTAL DUMP THE FIRST RECORD OF THE FILE, THEN SKIP THE FIRST 2 LOGICAL RECORDS TO GET TO THE TRACKING DATA RECORD, (LOGICAL RECORD NUMBER 3). SINCE THERE ARE 64 WORDS IN A SINGLE LOGICAL RECORD AND EACH WORD HAS 36-BITS AN OCTAL DUMP IS BEST SUITED FOR LOCATING THE BEGINING AND ENDING OF THESE RECORDS. (EACH RECORD COMPRISES 8 DUMP LINES) FROM THERE REFER TO TABLE-4, TRACKING DATA LOGICAL RECORDS, THIS TABLE GIVES THE BIT ASSIGNMENTS.

*TO FIND THE STOP TIME, DUMP THE LAST RECORD AND FIND WHERE THE DATA ENDS IN THAT RECORD. THEN LOCATE THE ODE WHICH IS IN BITS 1-36 IN THE LOGICAL RECORD. THIS NUMBER (WHEN CONVERTED TO DECIMAL) SHOULD BE AN 18 OR A 64. THEN REFER TO TABLE-4.

Table 4. Tracking Data Logical Records

OBUF Word	IBUF Bit Location	Description	Print Line	Print Columns
1	1-36	Word Count for ODE = 18 or 64		
2	37-72	Record Type = 90 (Low Rate Data) = 91 (High Rate Data)		
3	73-84	Last 2 Digits of Year } Record Time Tag	1/all	1-2
4	85-100	Day-of-Year	1/all	4-6
5	101-108	Hour	1/all	8-9
6	109-120	Minute	1/all	11-12
7	121-128	Second	1/all	14-15
8	129-156	Spacecraft ID Number	1/all	17-18
9	157-164	Network ID 2 = Deep Space Network (DSN) 3 = Manned Space Flight Network (MSFN) 4 = Eastern Test Range (ETR) 5 = German Tracking Station (GTS)		
10	165-172	Station Number	1/all	20-21
11	173-180	Downlink Frequency Band 0 = Not Applicable 1 = S-Band 2 = X-Band 3 = K-Band	1/all	23

DO NOT SEND WITH DOCUMENTATION!
FOR DATA TECH. USE ONLY.

900-772

INTERMEDIATE DATA RECORD (IDR)
STRIPPER PROGRAM SET

USER'S MANUAL

April 26, 1982

Prepared by: G. L. Goltz
Navigation Systems Section

Approved by: W. E. Kirhofer
Navigation Systems Section

JET PROPULSION LABORATORY
California Institute of Technology
Pasadena, California

CHANGE LOG

Status	Date	Affected Portions
Original Issue	Oct. 1, 1977	All
Revision 1	Sept. 1, 1979	All
Revision 2	April 26, 1981	All
Revision 3	April 26, 1982	All

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1. INTRODUCTION

In October 1975, the Engineering Coordination Team (Tracking Subteam) embarked upon the implementation of a new tracking system which would move realtime, IBM 360/75 tracking system functions to a non-realtime environment on the Univac 1108 (U1108) computers. The U1108 tracking software is named the Intermediate Data Record Selection, Translation, Revision, Intercalation, and Processing Programs for Engineering Radio Metric Data (IDR-STRIPPER) Program Set (IDRSPS). The primary function of the IDRSPS is to provide all Deep Space Network (DSN) radio metric (tracking and Very Long Baseline Interferometry (VLBI) products) data to the Navigation System users.

1.1 Purpose and Scope

The purpose of this document is to provide all of the information necessary to access the various IDRSPS programs, to input required data, and to generate the desired output. As such, this User's Manual gives detailed descriptions of the several IDRSPS subprograms and their use.

1.2 Conventions and Notations

"U1108" is used herein to refer both to the Univac 1108 computers (the original target system), and to the Univac 1100 computers (the current target system).

Also, all TDF tapes generated prior to April 26, 1980 are 7-track, 800 bpi. All subsequently generated TDF tapes are 9-track, 1600 bpi.

2. APPLICABLE DOCUMENTS

The latest issues of the documents listed below are applicable to and furnish input/output (I/O) requirements for this user's manual.

1) 820-13 DSN System Requirements Detailed Interface Design

2) 900-770 Multimission Tracking Software Subsystem, Tracking Intermediate Data Record Processor/Orbit Data Editor (ODE) Interface

3) 1839-1 Multimission Tracking System SDR/Archive Tape Interface

4) 618-782 ODP and DPTRAJ Interfaces and File Format Descriptions

3. SYSTEM OVERVIEW

The IDRSPS consists of 13 subprograms. The ODF-PROCESS and TDF-PROCESS programs are executable only via the STRIPPER runstream generator. All other programs may be executed directly by the users (the IDR-STRIPPER and SPR-STRIPPER programs may optionally be executed via the runstream generator program). The various IDRSPS programs and their descriptions are given in Table 3-1 below. Samples per SUP minute estimates for the IDR-STRIPPER, SDR-STRIPPER, and SPR-STRIPPER programs will vary greatly with the amount of ranging data, the amount of station transfer overlap data, the amount of recall data, and the ordering of the input IDRs, or SDRs, or SPRs. Also, run times and file sizes for IDR-STRIPPER should be estimated based on 6 ATDF samples per Standard Ground Communications Facility Data Block, and 3 ATDF samples per block should be assumed for SPR-STRIPPER.

Table 3-1. IDRSPS Programs

Program Absolute	Size - Words	Samples Per SUP Minute	Function
IDR-STRIPPER	19,236	about 6,000	Read 1 to 10 IDR tapes and generate a single, time-ordered ATDF
ODF-PRINT	3,189	about 5,800	Read any ODF and generate a listing
ODF-PROCESS	17,372	about 5,000	Read any TDF or VPDF tape/file and generate an ODF, and/or merge two ODFs, and/or edit an existing ODF
ODF-RECOMP	5,511	about 5,400	Read any ODF and generate a new ODF with the doppler data compressed to an integer multiple of the original count-time
SDR-STRIPPER	18,943	about 3,000	Read 1 to 10 SDR tapes and generate a single, time-ordered ATDF tape
SPR-STRIPPER	23,636	about 6,000	Read 1 to 10 SPR files and generate a single, time-ordered ATDF
STRIPPER	9,326	N/A	Generate and execute a command file and runstream from user request data
TDF-PLOTITM	4,249	about 20,000	Read any TDF and generate a printer plot of any specified data item
TDF-PLOTSUM	15,985	about 21,000	Read any TDF and generate a general device plot of the doppler mode and transmitter on/off data
TDF-PRINT	4,281	about 7,200	Read any TDF and generate a listing
TDF-PROCESS	11,935	about 12,000	Read 1 to 10 TDFs and generate a single, merged/edited MTDF

Table 3-1. IDRSPS Programs (continued)

Program Absolute	Size - Words	Samples Per SUP Minute	Function
UPDATE-DECAL	16,377	N/A	Access, maintain, and update range calibration pass and point files
UPDATE-QSRS	9,834	N/A	Access, maintain, and update a master quasar data file

NOTES:

1) ATDF = Archival Tracking Data File
2) IDR = Intermediate Data Record
3) MTDF = Master Tracking Data File
4) ODF = Orbit Data File (also called OD-File)
5) SDR = System Data Record
6) SPR = System Performance Record
7) TDF = Tracking Data File (ATDF or MTDF)
8) VPDF = VLBI Products Data File

4. PROGRAM USAGE (GENERAL)

The IDRSPS is a stand-alone system designed for use on the Univac 1108 computers. The basic function of the program set is to produce Tracking Data Files (TDFs) and Orbit Data Files (ODFs) for usage with other Navigation System software.

4.1 Batch vs. Demand Use

All IDRSPS programs may be accessed from either batch or demand mode. Usage is essentially identical for both modes, except that user input errors are handled differently in batch mode to insure data security.

To access the various IDRSPS programs the user simply enters an EXEC-8 @RUN card, assigns the program file, and executes the desired program. The programs will, upon successful entry, display the program name and version identifier. Except for the STRIPPER subprogram (which accepts English style command statements), and the ODF-PROCESS and TDF-PROCESS subprograms (which are executable only via the STRIPPER runstream file generator), all programs will subsequently call for, in a question-and-answer format, specific items of data to be entered by the user. It is required that the user respond to each question with a single input line (demand) or card (batch). Quotes must never be used when entering character data. Blank lines/cards are permitted for items of data which are indicated as being optional or having default values. Also, all user input data lines/cards must begin in column 1.

4.2 Error Messages and Cautions

If a non-recoverable error (e.g., an error in assigning or writing to a file) occurs, the IDRSPS programs will print an error message, will free all input and output tapes/files, and will terminate execution.

If an error occurs in reading a data record, a message identifying the bad record will be printed and processing will continue with the next sequential input record. Appendix II gives a list of the error status values and their meanings.

If an error is detected in the user input data and the program mode is batch, an error message will be printed and execution will be stopped. In demand mode, instead of terminating, the programs will ask for new input (in the same question-and-answer format as the initial request). The IDRSPS programs will continue to ask for corrections until acceptable data or an @EOF card is provided for the requested item.

In the way of cautions, it is important to note that, for most of the IDRSPS programs, all input and output tapes and files are handled internally by the programs (see specific programs for these file names) and must not be assigned by the user. All program-assigned files are attached to an optional, user-supplied qualifier via an @QUAL card.

5. IDR-STRIPPER PROGRAM

The IDR-STRIPPER program is used to read several (up to ten) DSN IDR tapes and to generate an Archival TDF (ATDF). The DSN IDR tapes are processed sequentially so that only one tape is mounted at a time.

5.1 Input

The IDR-STRIPPER program may be executed either directly or from the STRIPPER runstream generator. Direct access uses the interactive or question-and-answer method of input. A list of the IDR-STRIPPER input data requests and the appropriate response for each is provided below.

1) IDR INPUT TAPE CONTENTS TO BE DISPLAYED?

   User input: YES or NO (no quotes, beginning in column 1). The default is YES if a blank or erroneous response is entered (i.e., anything other than a NO will result in YES being assumed).

2) ENTER IDR INPUT TAPES LIST:

   User input: enter one to ten tape numbers (no quotes, separated by commas) or SAVE (no quotes; to salvage an existing intermediate IDR file). Each tape reel ID must be 4 to 6 digits in length (the program will ignore any other lengths).

3) ENTER START FILE FOR EACH IDR INPUT TAPE:

   User input: for each of the specified IDR input tape reel IDs, enter the number of the tape file at which processing is to begin. These start file identifiers must be separated by commas. The default is file 1 for each requested IDR tape for which a blank response is entered.

4) ENTER NUMBER OF FILES TO PROCESS FOR EACH IDR:

   User input: for each of the specified IDR input tape reel IDs, enter the number of tape files to use beginning at the indicated start file. The specified numbers of files must be separated by commas. The default is 1000 (all) for each requested IDR tape for which a blank response is entered.

5) ENTER OPTIONAL SPACECRAFT SELECTION ID:

   User input: enter 1- to 2-digit spacecraft ID number to be used for selection of output data. If a blank response is entered, the program will use the spacecraft ID from the first IDR input record processed. Zero is not a valid spacecraft ID number in either case.

6) ENTER SPACECRAFT TRANSPONDER FREQUENCY:

User input: enter 10-digit integer frequency (Hz) to be applied to the specified spacecraft over the time interval being processed. The default is 0 if an erroneous or blank response is entered.

7) ENTER OPTIONAL OUTPUT START DATE/TIME (YYDDDHHMM):

User input: if a specific start point is desired, enter the selected date/time. This number must be nine digits in length and must appear as shown (last two digits of year, 3-digit day-of-year, 2-digit hour, 2-digit minute). The default is to have no specified start point (i.e., begin with the earliest IDR time tag) if a blank response is entered.

8) ENTER OPTIONAL OUTPUT STOP DATE/TIME (YYDDDHHMM):

User input: if a specific stop point is desired, enter the selected date/time in the same manner as that used to specify the output start date/time.

9) ENTER ATDF OUTPUT FILE OR TAPE ID, WRITE INITIALS:

User input: if the ATDF output is to be generated to tape, the user must enter the 4- to 6-digit output tape reel ID, and the 3-digit tape write initials identifier (separated by a comma); if the ATDF output is to be generated to a Fastrand (disk) file, the user must enter a 1- to 6-digit output file ID only.

10) ENTER OPTIONAL IDR REFERENCE START DATE (YYDDD):

User input: if a specific IDR reference date is desired, enter the selected date. This number must be five digits long: last 2 digits of year, 3-digit day-of-year. The default is to use the IDR Label reference date.

11) ENTER DOPPLER SELECTION RATE:

User input: enter the sample selection rate (1 to 99999) to be used for extracting doppler from the IDR tapes. A selection rate of 1 (all) is assumed if a blank or erroneous response is entered. The input rate must be in integer seconds (ten-per-second doppler data appears as one-second data on all IDRs and TDFs).

If the IDR-STRIPPER program is to be executed via STRIPPER, the user inputs (refer to Section 11 for additional information), and, hence, the answers to the IDR-STRIPPER requests, are as follows:

1) TD-FILE(list)TDFTP(t,i)SCID(nn)time-span(T).

This command will generate the IDR-STRIPPER program execution card and the inputs to the IDR input tape

list, the ATDF output file ID or tape ID and write initials, the spacecraft ID, and the start and stop date/time requests (IDR-STRIPPER questions 2, 5, 7, 8, and 9). Entering of the IDR list, the ATDF, and the spacecraft ID are required, while the time-span (any allowable form) is optional. Also, operation via the indirect method causes question 1 (contents request) to be answered with a NO, and questions 3 and 4 (start files and number of files requests) to be answered with blanks (i.e., use the defaults).

2) BEACON(f).

This command is optional. If used, it must specify the 10-digit, integer transponder frequency. This value will then be added to the runstream for input as the response to IDR-STRIPPER question 6. If the command is omitted, a blank response will be added to the runstream and a beacon frequency value of 0 (zero) will be assumed.

3) COUNT-TIME(n,IDR).

This command is optional. If used, it must specify a 1- to 5-digit doppler selection rate (integer, 1 to 99999 seconds) to be used as the response to IDR-STRIPPER question 11. If the command is not used, a blank "card" will be added to the runstream which will cause all doppler to be output. IDR-STRIPPER question 10 (IDR reference start date) will always be answered with a blank (i.e., use the default).

After acceptable data have been entered, IDR-STRIPPER will print the data to be used. In direct-access, demand mode, permission will be asked of the user to commence with processing. If the user responds with NO (no quotes, beginning in column 1), the program will re-ask all 11 of the questions. A blank response to any of these questions will result in retention of the user's original input for that item; data will be changed only if new information is entered. This is a safeguard for demand mode use since "acceptable" input data does not necessarily mean "correct" data.

The IDR-STRIPPER program will terminate after writing the requested output (interim file and ATDF tape or file). The intermediate RSLP (Random Sequential List Processor) data file is cataloged for usage in sorting the data, but is of little use after IDR-STRIPPER terminates (unless there is some requirement for creating Pass Summaries and Transmitter Tables). Upon successful completion of the program, a message will be displayed indicating that the ATDF (file name 21) is still assigned and available for use. The ATDF record count, the start date/time, and the stop date/time will also be displayed.

5.2 IDR Contents List

As indicated in Paragraph 5.1 above, the user may request a listing of the contents of the IDR input tapes being processed. If a table of contents is requested, IDR-STRIPPER will print the IDR tape number, and the file number, DSS number, spacecraft number, file start date/time, and listing of the User Data Types (UDTs) for all files of each input IDR. Since most IDRs contain only one file, a table of contents request (which causes the entire tape to be scanned for a double end-of-file mark) is considered an unnecessary expense.

5.3 Archival TDF Tape/File Output

An ATDF is a disk file or 7-track, 800 bpi, unlabeled magnetic tape. It consists of a tracking data file composed of 1792-word blocks (or physical records) and a hardware end-of-file mark. Each ATDF block consists of 28 64-word logical records as described in Reference 2. Only the File Identification Record, a single Transponder (a Type 30 Transmitter) Record, and the Tracking Data Records will be output to the ATDF; no Pass Summary or Transmitter Records will be generated.

5.4 Restrictions and Constraints

The restrictions and constraints for the user input are specified in Paragraph 5.1 above. There are no other restrictions. However, it is strongly recommended that the input IDR tapes be entered in start date/time order since the ATDF is required to be chronological. The IDR-STRIPPER is quite capable of sorting the input data, but this is naturally a time-consuming and costly effort which will dramatically affect both wall clock and SUP times (and, hence, cost).

File names 11, 12, 21, and INTRM are reserved for program use. File INTRM (the intermediate RSLP file) must be deleted by the user after IDR-STRIPPER execution has completed.

6. ODF-PRINT PROGRAM

The ODF-PRINT program is used to generate a formatted listing of the contents of an ODF or OD-File (file name must be 34).

6.1 Input

The ODF-PRINT program is executable only via the direct-access mode. A list of the ODF-PRINT input data requests and the appropriate user response for each is provided below.

1) ENTER START DATE/TIME (YYDDDHHMMSS):

   User input: if a specific start point is desired, enter the selected date/time. The number must be eleven digits in length and must appear as shown (last two digits of year, 3-digit day-of-year, 2-digit hour, 2-digit minute, 2-digit second). The default is to have no specified start point (i.e., begin listing with the first-encountered data sample) if a blank response is entered.

2) ENTER STOP DATE/TIME(YYDDDHHMMSS):

   User input: if a specific stop point is desired, enter the selected date/time in the same manner as that used to specify the output start date/time.

6.2 Output

The ODF-PRINT program produces a formatted listing of the input ODF data records. Descriptions of the output data appear in the headers of the output listing. The File Identification, Orbit Data Summary, and Control Statement records are always printed, but only those Orbit Data and Ramp Group records between the specified start and stop limits are displayed.

6.3 Restrictions and Constraints

The restrictions and constraints for the user input are specified in Paragraph 6.1 above. The only other constraint is that the desired ODF must be assigned as file 34 (@ASG,A) prior to program entry.

7. ODF-PROCESS PROGRAM

The ODF-PROCESS program is used (1) to create an ODF from any TDF or VLBI Products Data File (VPDF), (2) to edit any ODF to another ODF, and/or (3) to merge any two ODFs to a single ODF. Editing of an ODF may be performed alone or while creating or merging. In all cases, the output ODF may be listed while it is being generated.

7.1 Input

The ODF-PROCESS subprogram is executable only via the STRIPPER runstream generator. The user's inputs (see Section 11 for additional information) are as follows:

1) OD-FILE(functions)SCID(nn).

This command will generate the ODF-PROCESS program execution card, the input for the function(s) to be performed, and the input for the spacecraft number. The allowable functions (for VPDF, use GENERATE instead of CREATE) and I/O file requirements are:

a) CREATE or CREATE,LIST
   Input TDF (VPDF if GENERATE) = file 21
   Output ODF = file 34
   Output Calibration Data = file ODEDCL

b) EDIT or EDIT,LIST
   Input ODF = file 32
   Output ODF = file 34

c) MERGE or MERGE,LIST
   Primary input ODF = file 32
   Secondary input ODF = file 33
   Output ODF = file 34

d) CREATE,MERGE or CREATE,MERGE,LIST
   Input TDF (VPDF if GENERATE) = file 21
   CREATEd ODF = Primary input ODF = file 32
   Secondary input ODF = file 33
   Output ODF = file 34
   Output Calibration Data = file ODEDCL

e) EDIT,MERGE or EDIT,MERGE,LIST
   Primary input ODF = file 32
   Secondary input ODF = file 33
   Output ODF = file 34

f) CREATE,EDIT,MERGE or CREATE,EDIT,MERGE,LIST
   Input TDF (VPDF if GENERATE) = file 21
   CREATEd ODF = Primary input ODF = file 21
   Secondary input ODF = file 33
   Output ODF = file 34
   Output Calibration Data = file ODEDCL

2) ADJUST(data types)BY(n)BAND(B)time-span(T)net(S)[FOR SPIN].

This command is optional and applies to the CREATE, GENERATE, or EDIT function. If used, it specifies a number to be added to the observable for a given set of data (mode, type, band, time span, station).

3) BUILD-XMTR.

This command is optional and is applicable only to the CREATE function. If used, data are treated as unramped (no 2030 Group records); if not used, data are treated as ramped (2030 Group data are output).

4) COUNT-TIME(rate,data types)BAND(B)time-span(T)net(S)[mask].

This command is required with a CREATE or GENERATE request to specify the data to be processed and the compression (doppler, narrowband) or selection (all other data) rate to be used. These commands may be nested and masking may be specified: MASK to override DATA-EDIT or UNRAMPED to override ramped mode. (NOTE: no COUNT-TIME commands means no ODF data.)

5) DATA-EDIT(check limits,data types)[NO PRINT].

This command is optional and is applicable only to the CREATE function. If used, it must specify the data acceptability residual check limits.

6) DELETE(data types)BAND(B)time-span(T)net(S).

This command is optional and applies to the CREATE, GENERATE, or EDIT function. If used, it specifies a subset of the input ODF's data to be omitted from being output to the final ODF.

7) IGNORE(data types)BAND(B)time-span(T)net(S).

This command is optional and applies to the CREATE or GENERATE function. If used, it specifies COUNT-TIME data to be omitted from being processed.

8) INSERT-RAMP(start frequency,ramp rate)BAND(B)time-span(T)net(S).

This command is optional and applies to the CREATE, GENERATE, EDIT, or MERGE function. If used, it indicates a ramp to be added to the output ODF.

9) LIGHT-TIME(A0,A1,A2)AFTER(T_0).

This command is optional and is applicable only to the CREATE function. If used, it specifies the A0, A1, A2, and T_0 parameters used to compute the round trip light time for a record (RTLT = A0 + A1 x (T_R-T_0) + A2 x (T_R-T_0)^2); if not used, RTLT is zero.

10) MULTIPLY(data types)BY(n)BAND(B)time-span(T)net(S).

This command is optional and applies to the CREATE, GENERATE, or EDIT function. If used, it specifies a number by which to multiply the observable for a given set of data.

11) PRINT(n,bldg/box,site)time-span(T)[FILE(name)].

This command is optional and applies to all of the ODF-PROCESS functions. If used, it must specify a number of copies (1 to 10), building/box, and print site to which the 102 print file is to be @SYMmed. If LIST is specified but PRINT is not, or if BATCH is specified for building/box, the 102 file will be printed at the input site (terminal if the mode is demand). If FILE is used, 102 will not be symmed.

12) SAMPLE-TIME(rate,data types)BAND(B)time-span(T)net(S).

This command is optional and applies to the CREATE, GENERATE, or EDIT function. If used, it specifies the selection rate for outputting data for a given set; if not used for a specified group of data, all data in that set will be output (unless specifically DELETEd). If editing 2-channel, narrowband VLBI data, a SAMPLE-TIME(0,types) command is required.

13) TIME-TAG(data types)BY(n)BAND(B)time-span(T)net(S).

This command is optional and applies to the CREATE, GENERATE, or EDIT function. If used, it specifies a number to be added to the time-tag for data in a given set.

7.2 ODF Tape/File Output

An ODF is a tape or disk file composed of any number of records of various lengths and descriptions as specified in Reference 4. The ODF is written as a Type-66 file (simulated unformatted FORTRAN).

7.3 Restrictions and Constraints

The restrictions and constraints for the user input are specified in Paragraph 7.1 above (additional input constraints are delineated in Section 11). Also, the user is required to assign all input/output files and tapes (with the exception of the ODEDCL Calibration File) prior to executing the program.

File names 11, 12, 13, 28, 36, 102, CMNDFL, IDRXQT, INTRMX, ODEDCL, and USERCM are reserved for program use. File names 42, 43, and 71 through 74 are also used for temporary, intermediate sorting files.

8. ODF-RECOMP PROGRAM

The ODF-RECOMP program is used to recompress the doppler data on any ODF to a larger count-time, and to generate a new ODF with the Orbit Data Summary records updated to reflect the revised contents.

8.1 Input

The ODF-RECOMP program is executable only via the direct-access mode of operation. A list of the ODF-RECOMP input data requests and the appropriate user response for each is provided below.

1) ENTER OUTPUT PRINT START, STOP TIMES
YYDDDHHMMSS,YYDDDHHMMSS

User input: to request print, enter a start date/time and stop date/time. The start and stop date/time specifiers must each be eleven digits in length (last 2 digits of year, 3-digit day-of-year, 2-digit hour, 2-digit minute, 2-digit second). The default is to produce no print (except summaries) if a blank is entered.

2) ENTER 1 TO 99 SPAN START, STOP, COUNT TIMES
YYDDDHHMMSS,YYDDDHHMMSS,CCCCCC

User input: enter 1 to 99 recompression requests by specifying the start date/time, stop date/time, and count-time for each. The start and stop date/time specifiers must be entered in the same manner as that used for the printout limits. The count-time specifier must be six digits (right-justified, zero-filled). The user must input an @EOF if fewer than 99 recompression requests are entered. Data are output "as is" for non-doppler records and for doppler records for which recompression is impossible or unrequested.

8.2 ODF Tape/File Output

An ODF is a tape or disk file composed of any number of records of various lengths and descriptions as specified in Reference 4. The ODF is written as a Type 66 file (simulated unformatted FORTRAN).

8.3 Restrictions and Constraints

The restrictions and constraints for the user input are specified in Paragraph 8.1 above. The user is also responsible for assigning the input ODF (file name 32), two (temporary) intermediate files (36 and 37), and the output ODF (file name 34).

There are no reserved file names for this program.

9. SDR-STRIPPER PROGRAM

The SDR-STRIPPER program is used to read several (up to 10) IBM 360/75 System Data Record (SDR) tapes and to generate an ATDF. The SDR tapes are processed sequentially so that only one tape is mounted at a time.

9.1 Input

The SDR-STRIPPER subprogram is executable only via the direct-access mode. A list of the SDR-STRIPPER input data requests and the appropriate user response for each is provided below.

1) ENTER SDR INPUT TAPES LIST:

   User input: enter one to ten tape numbers (no quotes, separated by commas) or SAVE (no quotes; to salvage an existing intermediate SDR file). Each tape reel ID must be 4 to 6 digits in length (the program will ignore any other lengths).

2) ENTER SPACECRAFT SELECTION ID:

   User input: enter 1- to 2-digit spacecraft ID number to be used for selection of output data. If a blank response is entered, the program will use the spacecraft ID from the first SDR input record processed. Zero is not a valid spacecraft ID number in either case.

3) ENTER OPTIONAL OUTPUT START DATE/TIME (YYDDDHHMM):

   User input: if a specific start point is desired, enter the selected date/time. This number must be nine digits in length and must appear as shown (last two digits of year, 3-digit day-of-year, 2-digit hour, 2-digit minute). The default is to have no specified start point (i.e., begin with the earliest SDR time tag) if a blank response is entered.

4) ENTER OPTIONAL OUTPUT STOP DATE/TIME (YYDDDHHMM):

   User input: if a specific stop point is desired, enter the selected date/time in the same manner as that used to specify the output start date/time.

5) ENTER ATDF OUTPUT TAPE REEL ID AND WRITE INITIALS:

   User input: if an output ATDF is to be generated, the user must enter the 4- to 6-digit output tape reel ID number, followed by a comma, followed by the 3-digit write initials identifier. The output ATDF request must be input exactly as shown, unless no ATDF is to be output (in which case a blank response is required to be entered).

After acceptable data have been entered, SDR-STRIPPER will print the data to be used. If in demand mode, the program will ask permission from the user to proceed with processing. If the user responds with a NO (no quotes, beginning in column 1), the program will re-ask all five of these questions. A blank response to any of these questions will result in retention of the user's original input for that item; data will be changed only if new information is entered. This is a safeguard for demand mode use since "acceptable" input data does not necessarily mean "correct" data.

The SDR-STRIPPER program will terminate after writing the requested output (interim data file and/or ATDF tape). The intermediate RSLP (Random Sequential List Processor) data file is cataloged for usage in sorting the data, but is of little use after SDR-STRIPPER terminates (unless there is some requirement for creating Pass Summaries and Transmitter Tables). If the user requests an ATDF output tape, a message will be displayed indicating that the ATDF (file name 21) is still mounted and available for use. The ATDF record count, the start date/time, and the stop date/time will also be displayed.

9.2 Archival TDF Tape Output

An ATDF output tape is a 7-track, 800 bpi, unlabeled magnetic tape. It consists of a tracking data file composed of 1792-word blocks (or physical records) and a hardware end-of-file mark. Each ATDF block consists of 28 64-word logical records as described in Reference 2. Only the File Identification Record, a single Transponder (a Type 30 Transmitter) Record, and the Tracking Data Records will be output to the ATDF; no Pass Summary or Transmitter Records will be generated.

9.3 Restrictions and Constraints

The restrictions and constraints for the user input are specified in Paragraph 9.1 above. There are no other restrictions. However, it is strongly recommended that the input SDR tapes be entered in start date/time order since the ATDF is required to be chronological. The SDR-STRIPPER is quite capable of sorting the input data, but this is naturally a time-consuming and costly effort which will dramatically affect both wall clock and SUP times (and, hence, cost).

File names 11, 12, 21, and INTRM are reserved for program use. File INTRM (the intermediate RSLP file) must be deleted by the user after SDR-STRIPPER execution has completed.

10. SPR-STRIPPER PROGRAM

The SPR-STRIPPER program is used to read several (up to ten) DSN SPR (System Performance Record) files or tapes, and to generate an ATDF. The SPRs are processed sequentially so that only one file or tape is assigned at a time.

10.1 Input

The SPR-STRIPPER program may be executed either directly or from the STRIPPER runstream generator. Direct access uses the interactive or question-and-answer method of input. A list of the SPR-STRIPPER input data requests and the appropriate response for each is provided below.

1) ENTER SPR INPUT TAPES/FILES LIST:

   User input: enter 1 to 10 input tape/file IDs (no quotes, separated by commas) or SAVE (no quotes; to salvage an existing intermediate SDR file). Each file ID must be 1 to 3 digits in length; each tape reel ID must be 4 to 6 digits long (other lengths are ignored).

2) ENTER OPTIONAL SPACECRAFT SELECTION ID:

   User input: enter 1- to 2-digit spacecraft ID number to be used for selection of output data. If a blank response is entered, the program will use the spacecraft ID from the first SPR input record processed. Zero is not a valid spacecraft ID number in either case.

3) ENTER SPACECRAFT TRANSPONDER FREQUENCY:

   User input: enter 10-digit integer frequency (Hz) to be applied to the specified spacecraft over the time interval being processed. The default is 0 if an erroneous or blank response is entered.

4) ENTER OPTIONAL OUTPUT START DATE/TIME (YYDDDHHMM):

   User input: if a specific start point is desired, enter the selected date/time. This number must be nine digits in length and must appear as shown (last two digits of year, 3-digit day-of-year, 2-digit hour, 2-digit minute). The default is to have no specified start point (i.e., begin with the earliest SPR time tag) if a blank response is entered.

5) ENTER OPTIONAL OUTPUT STOP DATE/TIME (YYDDDHHMM):

   User input: if a specific stop point is desired, enter the selected date/time in the same manner as that used to specify the output start date/time.

6) ENTER ATDF OUTPUT FILE OR TAPE ID, WRITE INITIALS:

User input: if the ATDF output is to be generated to tape, the user must enter the 4- to 6-digit output tape reel ID, and the 3-digit tape write initials identifier (separated by a comma); if the ATDF output is to be generated to a Fastrand (disk) file, the user must enter a 1- to 6-digit output file ID only.

If the SPR-STRIPPER program is to be executed via STRIPPER, the user inputs (refer to Section 11 for additional information), and, hence, the answers to the SPR-STRIPPER requests, are as follows:

1) TD-FILE(list)TDFTP(t,i)SCID(nn)time-span(T)DECODE.

This command will generate the SPR-STRIPPER program execution card and the inputs to the SPR input file list, the ATDF file ID or tape ID number and write initials, the spacecraft ID, and the start and stop date/time requests (SPR-STRIPPER questions 1, 2, 4, 5, and 6). Entering of the SPR list, the ATDF, the spacecraft ID, and the DECODE request* are required for this command, but the time-span (any allowable form) is optional.

2) BEACON(f).

This command is optional. If used, it must specify the 10-digit, integer transponder frequency. This value will then be added to the runstream for input as the response to SPR-STRIPPER question 3. If the command is omitted, a blank response will be added to the runstream and a beacon frequency value of 0 (zero) will be assumed.

After acceptable data have been entered, SPR-STRIPPER will print the data to be used. In direct-access, demand mode, permission will be asked of the user to commence with processing. If the user responds with NO (no quotes, beginning in column 1), the program will re-ask all 6 of the questions. A blank response to any of these questions will result in retention of the user's original input for that item; data will be changed only if new information is entered. This is a safeguard for demand mode use since "acceptable" input data does not necessarily mean "correct" data.

The SPR-STRIPPER program will terminate after writing the requested output (interim file and/or ATDF tape/file). The intermediate RSLP (Random Sequential List Processor) data file is cataloged for usage

* The DECODE specifier is the only means to distinguish an SPR-STRIPPER request from an IDR-STRIPPER request, and omitting or misspelling the DECODE modifier will result in IDR-STRIPPER being executed.

in sorting the data, but is of little use after SPR-STRIPPER terminates (unless there is some requirement for creating Pass Summaries and Transmitter Tables). Upon successful completion of the program, a message will be displayed indicating that the ATDF (file name 21) is still assigned and available for use. The ATDF record count, the start date/time, and the stop date/time will also be displayed.

10.2 Archival TDF Tape/File Output

An ATDF is a disk file or 7-track, 800 bpi, unlabeled magnetic tape. It consists of a tracking data file composed of 1792-word blocks (or physical records) and a hardware end-of-file mark. Each ATDF block consists of 28 64-word logical records as described in Reference 2. Only the File Identification Record, a single Transponder (a Type 30 Transmitter) Record, and the Tracking Data Records will be output to the ATDF; no Pass Summary or Transmitter Records will be generated.

10.3 Restrictions and Constraints

The restrictions and constraints for the user input are specified in Paragraph 10.1 above. There are no other restrictions. However, it is strongly recommended that the input SPR files be entered in start date/time order since the ATDF is required to be chronological. The SPR-STRIPPER is quite capable of sorting the input data, but this is naturally a time-consuming and costly effort which will dramatically affect both wall clock and SUP times (and, hence, cost).

File names 11, 12, 21, and INTRM are reserved for program use. File INTRM (the intermediate RSLP file) must be deleted by the user after SPR-STRIPPER execution has completed.

11. STRIPPER PROGRAM

The STRIPPER program is a control statement processor which is used to generate a runstream for driving other IDRSPS programs. It must be used for running the ODF-PROCESS and TDF-PROCESS subprograms; it may be used for executing the IDR-STRIPPER and SPR-STRIPPER subprograms. Its basic function is to accept user commands, to translate them to a coded command file, to generate a runstream to satisfy the user's request, and to initiate execution of that runstream.

11.1 Input

The STRIPPER program is executable only via the direct-access mode. The user input consists of up to 1,000 English-style command statements followed by an @EOF card. A list of the acceptable commands, their formats, and their functional descriptions is provided below. A period (.) must appear as the statement terminator (nowhere else), and each statement must be contained on two or fewer 80-column input cards. A comment may be appended to any command statement following its terminator. Also, it should be noted that all indicated commas must be present, whether or not the subsequent item of data is being specified. In all cases, the BAND, time-span, and net are optional. The default is SXK if no band is entered. The default is the entire span of the input data if no time-span is provided; AFTER(T), AT(T), BEFORE(T), or FROM(T)TO(T') may be entered. The default is all stations if no net is input; DSN(S) or DSS(S) may be entered. Further, commands are interpreted with all user-input blanks being ignored.

1) ADJUST(V1)BY(V2)BAND(B)time-span(T)net(S)[FOR SPIN].

   function: add a constant to the observable for each specified ODF Orbit Data Record. This is an optional command for the ODF-PROCESS subprogram and applies to EDIT, CREATE, and GENERATE functions.

2) BEACON(V5).

   function: specify the spacecraft transponder frequency (must be 10-digit integer). This is an optional command for the IDR-STRIPPER and SPR-STRIPPER subprograms.

3) BUILD-XMTR.

   function: specify that the doppler data is to be processed as unramped (whether or not it is genuinely unramped), and that no 2030 Group records are to be written to the generated ODF. This is an optional command for the ODF-PROCESS subprogram and applies only to the CREATE function.

4) CHANGE(V6,V7,V8,V1)BAND(B)time-span(T)net(S).

   function: change the value of specified TDF data. This is an optional command for the TDF-PROCESS subprogram.

5) COMMENT: [user comment].

function: insert a user comment into the output ODF's Control Statement Group (Group 111).

6) COUNT-TIME(V9,IDR).

function: indicate the time interval to be used for selecting IDR doppler data for output to an ATDF. This is an optional command for the IDR-STRIPPER subprogram.

7) COUNT-TIME(V9,V1)BAND(B)time-span(T)net(S)[MASK or UNRAMPED].

function: indicate the time interval to be used for compressing desired doppler and narrowband data, and/or for selecting other TDF/VPDF data for ODF output. This command is required for the ODF-PROCESS subprogram and applies to the CREATE and GENERATE functions.

8) DATA-EDIT(V17,V18,V19,V20,V1)[NO PRINT].

function: indicate the check limits to be used for automatic data editing based on residual values. This is an optional command for the ODF-PROCESS subprogram and applies only to the CREATE function. If V1 has OUT OF TOLERANCE indicated, bad data (per the residual analysis) will be processed as if it is valid data. Also, only that data specified for processing via a COUNT-TIME command (unMASKed) will be analyzed.

9) DELETE(V1)BAND(B)time-span(T)net(S).

function: prevent the processing and outputting of specified ODF data. This is an optional command for the ODF -PROCESS subprogram and applies to the CREATE, GENERATE, and EDIT functions.

10) IGNORE(V1)BAND(B)time-span(T)net(S).

function: prevent the processing and outputting of specified TDF data. This is an optional command for the ODF -PROCESS subprogram and applies only to the CREATE and GENERATE functions.

11) INSERT-RAMP(A0,A1,A2)BAND(B)time-span(T)net(S).

function: add a ramp record to a specified 2030 Group in the output ODF, or revise an existing ramp. This is an optional command for the ODF-PROCESS subprogram and applies to all of the functions (CREATE, GENERATE, EDIT, and MERGE).

12) LIGHT-TIME(A0,A1,A2)AFTER(T_0).

function: specify the parameters for computing RTLT. This is an optional command for the ODF-PROCESS subprogram and applies only to the CREATE function.

13) MULTIPLY(V1)BY(V2)BAND(B)time-span(T)net(S).

function: multiply the observable for each specified ODF data record by a constant. This is an optional command for the ODF-PROCESS subprogram and applies to EDIT, CREATE, and GENERATE functions. MULTIPLY commands are applied after any applicable ADJUST commands.

14) OD-FILE(V10)SCID(V11).

function: specify TDF-to-ODF, VPDF-to-ODF, and/or ODF-to-ODF processing action. This command is required to invoke execution of the ODF-PROCESS subprogram.

15) PRINT(V12,V13)time-span(T)[FILE(name)].

function: specify symbiont print action. This is an optional command for the ODF-PROCESS subprogram and applies to the CREATE, GENERATE, EDIT, and MERGE functions.

16) REMAKE(V14)TDFTP(V3,V4)SCID(V11)time-span(T).

function: specify TDF merging/modification processing action. This command is required to invoke execution of the TDF-PROCESS subprogram.

17) SAMPLE-TIME(V9,V1)BAND(B)time-span(T)net(S).

function: indicate the time interval to be used for selecting specified ODF data for output to another ODF. This is an optional command for the ODF-PROCESS subprogram and applies to the CREATE, GENERATE, and EDIT commands. Whenever editing is performed on a file which contains 2-channel, narrowband VLBI data, the user must include a SAMPLE-TIME(0,V1) command where V1 = INSD, INSP, INQD, and/or INQP as appropriate.

18) TD-FILE(V15)TDFTP(V3,V4)SCID(V11)time-span(T)[V16].

function: specify IDR-to-TDF or SPR-to-TDF processing action. This command is required to invoke execution of the IDR-STRIPPER or the SPR-STRIPPER subprogram.

19) TIME-TAG(V1)BY(V2)BAND(B)time-span(T)net(S).

function: add a constant to each specified ODF data record's time-tag. This is an optional command for the ODF -PROCESS subprogram and applies to the CREATE, GENERATE, and EDIT functions.

Descriptions of the variable codes used in these control statements are provided below. If an error is detected in a user command, the STRIPPER program will display a message identifying this code. For demand usage, the user may enter a corrected request; but for batch usage, the program will terminate.

Table 11-1. STRIPPER Variable Codes

Code	Description
A0	light-time coefficient or integer part of ramp start frequency; format must be iEj where i is a 1- to 10-digit integer, and j is a 1- to 3-digit integer exponent to be applied to i
A1	light-time coefficient or fractional part of ramp start frequency; same format as A0
A2	light-time coefficient or ramp rate; same format as A0
B	receiver band; S, X, and/or K (the default is SXK if none is specified); or R if command applies to ramp records
S	station numbers; one to three 2-digit DSS numbers separated by commas (the default is all stations if none is specified)
T	date and time; format must be YYDDD,HHMMSS or YYMMDD,HHMMSS
T_0	start of epoch; same format as T
V1	Ground Mode: F1, F2, F3, and/or F4 (the default is all if none is specified) and/or Range/DRVID Type: MARK1A, MU2, MU, PLOP2, PLOP, and/or TAU (the default is all if none is specified) and/or Data Type: ANGLE1 or ANGLE2 or ANGLES or BAD ANGLES, DOPPLER or BAD DOPPLER, DRVID, RANGE, OUT OF LOCK, and/or OUT OF TOLERANCE; or ALL; or blank (= ANGLES, DOPPLER, DRVID, RANGE) or ΔVLBI Type: INQD, INQP, INSD, INSP, IWQ, IWS, INDD, and/or IWDD; or ALL VLBI
V2	constant to be applied to an ODF observable or time-tag; same format as A0
V3	1- to 6-digit file ID, or 4- to 6-digit tape reel ID number
V4	3-digit tape reel write initials (if applicable)
V5	10-digit integer spacecraft transponder (beacon) frequency
V6	Change Field ID number (TDF unpacked word; 1 to 145): 12 = ground mode 16 = doppler good/bad flag 19 = doppler bias value 27 = transmitter on/off flag 52 = doppler reference frequency 120 = ramp delay time (nanoseconds) 145 = exciter reference frequency etc. (see Table 4 of Appendix IV for a complete list of reference IDs)

Table 11-1. STRIPPER Variable Codes (continued)

Code	Description
V7	old data value; 1- to 10-digit integer (the default is all old data if a blank is entered)
V8	new data value; 1- to 10-digit integer
V9	time interval (seconds) over which data is to be compressed or selected; 1- to 5-digit integer
V10	CREATE or GENERATE, EDIT, LIST, and/or MERGE (EDIT should not appear with CREATE or GENERATE unless MERGE is also specified)
V11	1- to 2-digit spacecraft ID number
V12	number of remote output copies to be printed; 1 to 10
V13	remote building/box, device for symbiont output (BATCH may be specified for building/box to allow time-span specifications when print is to be to the input device)
V14	one to ten TDF tapes/files (separated by commas) to be merged and/or modified: the tape reel ID numbers must each be 4 to 6 digits, and the file IDs must each be 1 to 3 digits
V15	one to ten IDR/SPR input tape/file IDs; same format as V14
V16	DECODE for SPR-STRIPPER (otherwise IDR-STRIPPER is assumed)
V17	minimum acceptable residual value; same format as A0
V18	maximum acceptable residual value; same format as A0
V19	1st derivative absolute value limit; same format as A0
V20	2nd derivative absolute value limit; same format as A0

11.2 Output

The STRIPPER program generates three files as its output: an exact copy of accepted user control statements, a coded RSLP command file, and the IDRSPS runstream. The runstream file consists of the EXEC-8 and data input card images necessary to satisfy the particular user request. None of these files is directly accessible by the user.

11.3 Restrictions and Constraints

The restrictions and constraints for the user input are specified in Paragraph 11.1 above. There are no other restrictions.

File names 11, 12, 13, 28, CMNDFL, IDRXQT, and USERCM are reserved.

12. TDF-PLOTITM PROGRAM

The TDF-PLOTITM subprogram is used to produce a printer plot of any item of data on any TDF tape or file (file name must be 21).

12.1 Input

The TDF-PLOTITM subprogram is executable only via the direct-access mode. A list of the TDF-PLOTITM input data requests and the appropriate response for each is provided below.

1) ENTER PLOT ITEM RECORD TYPE ID NAME:

   User input: enter ANGLES, DOPPLER, DRVID, or RANGE (no quotes, beginning in column 1). Only one type ID name may be specified. The default is DOPPLER if a blank or erroneous response is entered.

2) ENTER PLOT ITEM ID (UNPACKED WORD):

   User input: enter OBUF word from Table 4 of Appendix IV for the particular item to be "plotted". The default is to use item 72 (doppler residual) if a blank response is entered.

3) ENTER PLOT ITEM MINIMUM TIMES 1000:

   User input: enter the minimum value (integer times 1000) of the item to be "plotted". The default is 0 if a blank response is entered.

4) ENTER PLOT ITEM MAXIMUM TIMES 1000:

   User input: enter the maximum value (integer times 1000) of the item to be "plotted". The default is 1 (0.001) if a blank response is entered.

5) ENTER PRINT PAGE WIDTH (72 OR 132):

   User input: enter the desired "plot" width as number of columns of print - 72 if demand terminal output, or 132 if line printer output. The default is 72 if a blank response is entered.

6) ENTER START DATE/TIME (YYDDDHHMM):

   User input: if a specific start point is desired, enter the selected date/time. This number must be nine digits in length and must appear as shown (last two digits of year, 3-digit day-of-year, 2-digit hour, 2-digit minute). The default is to have no specified start point (i.e., begin with the earliest TDF time tag) if a blank response is entered.

7) ENTER STOP DATE/TIME (YYDDDHHMM):

User input: if a specific stop point is desired, enter the selected date/time in the same manner as that used to specify the output start date/time.

12.2 Output

The TDF-PLOTITM program generates a printer plot of any item of data on any TDF as a function of time (the plotted points are on 1-minute centers; all other, in between samples are not plotted.

12.3 Restrictions and Constraints

The restrictions and constraints for the user input are specified in Paragraph 12.1 above. The only other constraint is that the desired TDF must be assigned as file 21 prior to program entry.

13. TDF-PLOTSUM PROGRAM

The TDF-PLOTSUM program is used for producing a listing and optional summary plot of the station coverage, doppler modes, and transmitter history data on any TDF tape or file (file name must be 21).

13.1 Input

The TDF-PLOTSUM subprogram is executable only via the direct-access mode. A list of the TDF-PLOTSUM input data requests and the appropriate response for each is provided below.

1) ENTER OPTIONAL START DATE/TIME (YYDDDHHMM)

   User input: if a specific start point is desired, enter the selected date/time. This number must be nine digits in length and must appear as shown (last two digits of year, 3-digit day-of-year, 2-digit hour, 2-digit minute). The default is to have no specified start point (i.e., begin with the earliest TDF time tag) if a blank response is entered.

2) ENTER OPTIONAL STOP DATE/TIME (YYDDDHHMM)

   User input: if a specific stop point is desired, enter the selected date/time in the same manner as that used to specify the output start date/time.

3) ENTER HOURS PER INCH ON X-AXIS, TIMES 100

   User input: enter the desired plot scale in integer hundredths of hours (e.g., 1 hour 30 minutes is entered as the number 150 and not as 1.50). Enter a 0 if no plot is desired. Enter a negative scale to suppress the printing of plot data time tags. The default is 0.

If the input to question 3 is not equal to 0, the following requests will be issued:

4) ENTER ROUND TRIP LIGHT TIME (MINUTES X 100)

   User input: specify round trip light time in integer hundredths of minutes (e.g., 1 hour 12 minutes 30 seconds must be entered as 7250 and not as 72.50). The default is 0 if a blank response is entered.

5) ENTER 1 TO 6 PLOT LABEL LINES

   User input: enter 1 to 6 title lines. Each line may consist of 12 or fewer alphanumeric characters (quotes may be entered but are treated as part of the title line). If less than six title lines are desired, the user can enter an @EOF at any time and cuase the program to exit the loop and begin processing.

13.2 Output

The TDF-PLOTSUM program generates a printout of the station coverage for an input TDF. . This listing consists of the data type ID (ground mode or transmitter indicator) and the start and stop limits for the specified data. If requested (input to question 3 not equal to 0), a summary plot of the printed data is also generated. However, this plot is not output until/unless the user enters the required EXEC-8 PLOT*PLOT commands:

1) Enter @BLK,F PUNCH$,bldg/box,site for CalComp plotting
2) Enter @PLOT,options
3) Enter RDNAM namelist data if "I" is one of the @PLOT options

The output plot is a summary of the doppler and transmitter history data on a TDF. The X-axis gives the time, and the Y-axis delineates the data identification information (complex, station, band, doppler mode). The Y-axis is divided into three parts to separate the Goldstone (bottom), Spain (middle), and Australia (top) complexes. Each site is then split in two for identifying stations (upper half shows 64M stations, lower half denotes 26M or 34M stations). Each station segment is then split again to indicate band (upper half for S-band, lower half for X-band, and center line for transmitter status). The band segments are further divided into levels to denote doppler mode (1-way is at the top, then 2-way, then 3-way, then 3-way coherent).

13.3 Restrictions and Constraints

The restrictions and constraints for the user input are specified in Paragraph 13.1 above. The only restriction for the output is that a sufficient number of cards be specified on the @RUN card if the plot is to be generated. The only other constraint is that the requested TDF must be assigned as file 21 prior to program entry.

14. TDF-PRINT PROGRAM

The TDF-PRINT program is used to generate a formatted listing of the contents of any TDF tape or file (file name must be 21).

14.1 Input

The TDF-PRINT program is executable only via the direct-access mode. A list of the TDF-PRINT input data requests and the appropriate user response for each is provided below.

1) START DATE/TIME (YYDDDHHMM)?

   User input: if a specific start point is desired, enter the selected date/time. This number must be nine digits in length and must appear as shown (last two digits of year, 3-digit day-of-year, 2-digit hour, 2-digit minute). The default is to have no specified start point (i.e., begin with the earliest TDF time tag) if a blank response is entered.

2) STOP DATE/TIME (YYDDDHHMM)?

   User input: if a specific stop point is desired, enter the selected date/time in the same manner as that used to specify the output start date/time. If 0 (zero) is entered, only the File Identifier, Transponder, and any Transmitter and Pass Summary records found will be printed.

14.2 Output

The TDF-PRINT program produces a formatted listing of the input TDF data records. Descriptions of the output data appear in the headers of the output listing. The File Identifier Record, Pass Summaries, and Transponder/Transmitter Records are always printed (if present), but only those Tracking Data Records between the specified start and stop limits are displayed.

14.3 Restrictions and Constraints

The restrictions and constraints for the user input are specified in Paragraph 14.1 above. The only restriction for the output is that a sufficiently large file be assigned for receiving the printout. The only other constraint is that the requested TDF must be assigned as file 21 prior to program entry.

15. TDF-PROCESS PROGRAM

The TDF-PROCESS program is used to merge and/or edit one to ten TDF tapes/files and to output a Master TDF (MTDF) for permanent storage. The input TDFs are read two at a time, and are written directly onto the MTDF. Hence, three tape units may be required for simultaneous use by this program.

15.1 Input

The TDF-PROCESS subprogram is executable only via the STRIPPER run-stream generator. The user's inputs (see Section 11 for additional information) are as follows:

1) REMAKE(list)TDFTP(t,i)SCID(nn)time-span(T).

   This command will generate the TDF-PROCESS program execution card. It will also specify the tape/file identifiers of the TDFs to be merged/modified, and a 1- to 6-digit file, or a 4- to 6-digit tape reel and 3-digit write initials ID for the output MTDF.

2) CHANGE(item,old,new,data type)BAND(B)time-span(T)net(S).

   This command specifies the item(s) of data that are to be modified. Up to 1,000 CHANGE command inputs are permitted. Each such command specifies an item of data to be modified (doppler good/bad flag, data year, transmitter on/off flag, etc.), the old value of the item (the default is all if a blank value is specified), the new value of the item, and the data type, band, time-span, and station ID (all of which have default values if not specified) to which the request is to apply.

The TDF-PROCESS program will terminate after generating the required output MTDF. The MTDF tape/file will remain assigned after program termination as file 21 (actually as file 22, but with an @USE relationship established).

15.2 Master TDF Tape/File Output

An MTDF is a disk file or 7-track, 800 bpi, unlabeled magnetic tape. It consists of a tracking data file composed of 1792-word blocks (or physical records) and a hardware end-of-file mark. Each MTDF block consists of 28 64-word logical records as described in Reference 2. The MTDF looks exactly like an ATDF except that it has an open-ended Transponder Record (stop date/time = 99:365:23:59:59).

15.3 Restrictions and Constraints

The restrictions and constraints for the user input are specified in Paragraph 15.1 above (additional input constraints are delineated in Section 11). Also, since TDF-PROCESS merges file-to-file, the input TDFs must be requested in start date/time order to avoid any loss of data. The only restriction for an output MTDF tape is that the user not attempt to merge more than 56,400 tracking data logical records since this would exceed the capacity of a full 2400-foot tape reel.

File names 11, 12, 13, 21, 22, and CMNDFL are reserved.

16. TDF-UNPACK ROUTINE

TDF-UNPACK is a relocatable subroutine which may be accessed by user programs to unpack the TDF data records to individual U1108 words as desribed in Appendix IV.

16.1 Access

Requirements for using the TDF-UNPACK subroutine are provided below. (Additional information, if required, may be found in IOM 314.2-197, dated July 25, 1978.)

1) the subroutine must be included in the user's program collection by inserting the following line in the map runstream:

   LIB LIB*NAV$.

2) data arrays must be declared in the user's program as follows:

   INTEGER IBUF(64,28), OBUF(145)

   (Other names may, of course, be used. But a 64x28-word, integer array must be available to contain the packed TDF physical data records, and a 145-word, integer array must be available to contain the unpacked TDF logical record data. Unpacking of the TDF blocks is performed one logical record at a time. This requires TDF-UNPACK to be called 28 times for each TDF block.)

3) The TDF-UNPACK routine must be called for each valid (IBUF(2,j) equals 10, 20, 30, 31, 90, or 91) TDF logical record which is to be processed:

   CALL TDFUPK(IBUF(1,j),OBUF)

16.2 Return

The TDF-UNPACK routine will return a 145-word integer array containing the unpacked TDF data for the supplied logical record.

16.3 Restrictions and Constraints

The restrictions and constraints for the user access are provided in Paragraph 16.1 above. The user's program must also provide its own TDF record validity checks, and its own end-of-data (IBUF(2,j) = 0) and end-of-file exits.

17. UPDATE-DECAL PROGRAM

The UPDATE-DECAL subprogram is used to access, maintain, and update a master range calibration pass-history file of up to 14,500 records and a master range data point file of up to 140,800 samples.

17.1 Input

The UPDATE-DECAL subprogram is executable only via the direct-access mode. A list of the UPDATE-DECAL input data requests and the appropriate response for each is provided below.

1) ENTER PROCESSING ACTION REQUEST:

User input: enter UPDATE, DELETE, LIST, PUNCH, and/or PLOT for pass-history file processing:

- UPDATE - pass-consolidate data from the ODF-PROCESS range file (ODEDCL) and add these records to the pass-history file
- DELETE - remove records from the pass-history file
- LIST - print pass-history file data
- PUNCH - generate ODF-PROCESS range ADJUST cards
- PLOT - plot (CalComp) pass-history file data

or: enter MERGE, CARDS, and/or PRINTx (where x = 1, 2, or 3) for range point file processing.

- MERGE - merge data from the ODF-PROCESS range file (ODEDCL) with a user range point file (35)
- CARDS - generate range ADJUST and/or DELETE cards for ODF-PROCESS
- PRINTx - list range point file data:
  - x = 1 for station, spacecraft, and Z calibration data print
  - x = 2 for waveform and plasma calibration data print
  - x = 3 for ranging data/parameters print

2) ENTER SPACECRAFT ID NUMBER FOR FILE DELETE ACTION:

User input: enter 1- to 2-digit spacecraft ID number to be used for deletion of history data. If a blank response is entered, no deleting will be performed.

3) ENTER START DATE/TIME (YYDDDHHMM) FOR FILE DELETE ACTION:

User input: if a specific start point is desired, enter the selected date/time. This number must be nine digits in length and must appear as shown (last two digits of year, 3-digit day-of-year, 2-digit hour, 2-digit minute). The default is to have no specified start point (i.e., begin with the earliest time tag) if a blank response is entered.

4) ENTER STOP DATE/TIME (YYDDDHHMM) FOR FILE DELETE ACTION:

User input: if a specific stop point is desired, enter the selected date/time in the same manner as that used to specify the file delete start date/time.

5) ENTER SPACECRAFT ID LIST FOR PRT/PLT/ADJ ACTION:

User input: enter one to ten 2-digit spacecraft IDs (separated by commas) to be used for selection of the data to be printed, plotted, and/or ADJUSTed. A blank will result in no print/plot/ADJUST output.

6) ENTER STATION-BAND LIST FOR PRT/PLT/ADJ ACTION:

User input: enter one to twenty 3-digit (SSB) station-band IDs (no quotes, separated by commas) to be used for the selecting of print, plot, and/or ADJUST output. An ALL response will result in all station-band groups being processed; a blank response will result in no output. Each ID must appear as a 2-digit DSS number and a 1-digit band identifier (S or X).

7) ENTER START DATE/TIME (YYDDDHHMM) FOR PRT/PLT/ADJ ACTION:

User input: if a specific start point is desired, enter the selected date/time in the same manner as that used to specify the delete action start date/time.

8) ENTER STOP DATE/TIME (YYDDDHHMM) FOR PRT/PLT/ADJ ACTION:

User input: if a specific stop point is desired, enter the selected date/time in the same manner as that used to specify the delete action start date/time.

After acceptable data have been entered, UPDATE-DECAL will print the data to be used. If in demand mode, the program will ask permission from the user to proceed with processing. If the user responds with a NO (no quotes, beginning in column 1), the program will re-ask all eight of the questions. A blank response to any of these questions will result in retention of the user's original input for that item; data will be changed only if new information is entered. This is a safeguard for demand mode use since "acceptable" input data does not necessarily mean "correct" data.

If MERGE, CARDS, or PRINTx is specified in response to question 1, a request will be issued for the user to provide the master range data point file name:

9) ENTER MASTER RANGE POINT FILE NAME

User input: enter 1- to 20-digit master point file name (qualifier included if necessary), followed by a period.

If CARDS is specified, the following request will be issued:

10) ENTER ADJUST/DELETE CARD REQUESTS

User input: enter any number of ADJUST and/or DELETE processing requests followed by an @EOF control card to cause execution to begin. ADJUST requests have the form

```
ADJUST ON [S-X and/or D-AVG]
```

DELETE data-edit requests are of the form

```
DELETE(V1,V2,V3,V4,item)DSS(S)
```

where:
- V1 = minimum item value (format = iEj)
- V2 = maximum item value (format = iEj)
- V3 = 1st derivative absolute value limit (format = iEj)
- V4 = 2nd derivative absolute value limit (format = iEj)
- item = VLD (range validity)
  - S-X (differenced S-X range)
  - PSD (pseudo DRVID)
  - P/N (power/noise ratio)
  - CAL (station delay calibration)
  - RSD (range residual value)
- S = station-band list

If PUNCH is entered in response to question 1, the program will make the following request:

11) ENTER PASS STATION, S/C, Z-HEIGHT CALS

User input: enter 1 to 64 range data adjustment requests and an @EOF card. The ADJUST requests have the form

```
S,date,time,D1,D2,D3
```

where:
- S = station-band identifier (3 digits)
- date = pass start date (YYDDD)
- time = pass start time (HHMMSS)
- D1 = station delay (integer range units)
- D2 = spacecraft delay (nanoseconds x 10)
- D3 = Z correction (meters x 100)

17.2 Output

The UPDATE-DECAL program outputs an updated range data pass-history or point file, ADJUST/DELETE cards, CalComp plots, and/or a listing. The history file consists of range data calibration summary records (one per pass) stored in spacecraft, station, band, start date/time sequence. The point file consists of individual range data samples written in date/time, station, band sequence.

17.3 Restrictions and Constraints

The restrictions and constraints for the user input are specified in

Paragraph 17.1 above. The only other constraint is that the user is required to attach file name 36 to the ODEDCL file via @USE if MERGE or UPDATE action is requested.

File names 11, 12, and 22 are reserved for program use.

18. UPDATE-QSRS PROGRAM

The UPDATE-QSRS subprogram is used to access, maintain, and update a master data file containing information for up to 900 quasars.

18.1 Input

The UPDATE-QSRS subprogram is executable only via the direct-access mode. The user input consists of various edit commands. A list of the acceptable commands and their associated edit field descriptors is given below. Input is via fixed-format FORTRAN reads:

AAbAAAAAAAAAAAAAsII,II,XX.XXXsII,II,XX.XXX,XX.XX,XX.XXA

where b denotes a blank space, A denotes character data, I denotes integer data, X denotes real data, and s denotes a sign (+ or -).

1) Add a new entry to the file:

input C,ID,RA,DEC,TFS,CFS,FSS

where: C = Ab
ID = Usual Name (left-jutified, blank-filled)
RA = Right Ascension (format must be +HH,MM,SS.fff)
DEC = Declination (format must be ±DD,MM,SS.fff)
TFS = Total Flux Strength (format must be FF.ff)
CFS = Correlated Flux Strength (format must be FF.ff)
FSS = Flux Strength Status (must be b of *)

2) Delete an old entry from the file:

input C,ID

where: C = Db
ID = Usual Name (left-justified, blank-filled)

3) List all entries in the file:

input C

where: C = LC for Usual Name sequence
= LN for Reference ID Number sequence
= LU for Universal Name sequence

4) List a single specified entry:

input C,ID

where: C = LR
ID = Usual Name, Reference ID Number, or Universal Name

5) Change the right ascension for an entry:

input C,ID,RA

where: C = CR
ID = Usual Name (left-justified, blank-filled)
RA = Right Ascension (format must be +HH,MM,SS.fff)

6) Change the declination for an entry:

input C,ID,DEC

where: C = CD
ID = Usual Name (left-justified, blank-filled)
DEC = Declination (format must be ±DD,MM,SS.fff)

7) Change the total flux strength for an entry:

input C,ID,TFS

where: C = CT
ID = Usual Name (left-justified, blank-filled)
TFS = Total Flux Strength (format must be +II.II)

8) Change the correlated flux strength for an entry:

input C,ID,CFS

where: C = CC
ID = Usual Name (left-justified, blank-filled)
CFS = Correlated Flux Strength (format must be +II.II)

9) Change the flux strength status for an entry:

input C

where: C = Cb if new status is to be b
= C* if new status is to be *

18.2 Output

The UPDATE-QSRS program produces an updated quasar master data file, and/or a listing of some subset of the quasar file. All master data file entries are sorted and identified by Reference ID Number, Usual Name, and Universal Name. A LIB*NAV$ routine, USE-QUASARS, allows a user to retrieve any quasar data record by any of its keys, randomly or sequentially.

18.3 Restrictions and Constraints

The restrictions and constraints for the user input are specified in Paragraph 18.1 above. There are no other restrictions.

File names 11 and 12 are reserved for program use.

APPENDICES

APPENDIX I

GLOSSARY OF TERMS AND ABBREVIATIONS

AOS	-	Acquisition of Signal
ATDF	-	Archival Tracking Data File
DSN	-	Deep Space Network
DSS	-	Deep Space Station
H/P	-	High Part = variable / 10^4
IDR	-	Intermediate Data Record
IDRSPS	-	Intermediate Data Record Selection, Translation, Revision, Intercalation, and Processing Programs for Engineering Radio Metric Data (IDR-STRIPPER) Program Set
I/O	-	Input/Output
LOS	-	Loss of Signal
L/P	-	Low Part = (variable modulo 10^4) x 10^3
MTDF	-	Master Tracking Data File
ODE	-	Orbit Data Editor Program
ODF	-	Orbit Data File (also called OD-File)
RDFI	-	Range Data Field Identifier
RSLP	-	Random Sequential List Processor
RTLT	-	Round Trip Light Time
SDR	-	System Data Record
SPR	-	System Performance Record
TDF	-	Tracking Data File (ATDF or MTDF)
UDT	-	User Data Type
U1108	-	Univac 1108 (or 1100) Computers
VLBI	-	Very Long Baseline Interferometry
VPDF	-	VLBI Products Data File

APPENDIX II

Error Message Status Values

1. Facility Assign Errors

Message Form: UNABLE TO ASSIGN . . .

Error Codes: see U1108 EXEC-8 Handbook (900-579), pages 2-11 to 2-18

2. Facility Access Errors

Message Form: UNABLE TO { READ / WRITE / etc. } . . .

Error Codes:
- 1 = end-of-file encountered on magnetic tape
- 2 = end-of-tape encountered on write operation
- 4 = non integral block read from magnetic tape
- 11 = non recoverable hardware error
- 12 = magnetic tape loss of position or operator key-in
- 13 = peripheral unit declared down
- 20 = write in read-only mode; read in write-only mode
- 21 = file not assigned
- 22 = attempt to access outside file size limits
- 40 = previous I/O request still in progress

3. RSLP Access Errors

Message Form: UNABLE TO { RSADD / RSPACK / etc. } . . .

Error Codes:
- 77777777777n = RSLP file has been damaged (overflow)
- 000000000001 = duplicate record found on add request
- = bottom or top of list on next request
- = record does not exist in list on find, change, or delete request

APPENDIX III

STRIPPER Sample Runstream

```
@CAT,P  34.
@XQT IDRSPS-XISTS.STRIPPER
TD-FILE(IM6666) TDFTP(X001,III) SCID(31).
REMAKE(21) TDFTP(X002,III) SCID(31).
CHANGE(12,2,1,DOPPLER) FROM(79068,120000) TO(79068,131700) DSS(43).
CHANGE(12,1,2,DOPPLER) FROM(79068,193400) TO(79068,195600) DSS(63).
CHANGE(27,0,1,DOPPLER) FROM(79069,002900) TO(79069,020600) DSS(14).
CHANGE(27,1,0,DOPPLER) FROM(79069,095100) TO(79069,150300) DSS(43).
CHANGE(12,2,1,DOPPLER) FROM(79069,110000) TO(79069,141000) DSS(43).
CHANGE(12, ,0,DOPPLER) FROM(79069,140500) TO(79069,141000) DSS(14).
CHANGE(27,0,1,DOPPLER) FROM(79069,140500) TO(79069,141000) DSS(14).
CHANGE(27,0,1,DOPPLER) FROM(79069,142000) TO(79069,150000) DSS(63).
OD-FILE(CREATE,LIST) SCID(31) BEFORE(79072,0).
PRINT(2,ODF/CREATE,HSPC).
BUILD-XMTR.
DATA-EDIT(-500,500,5E-3,25E-6,DOPPLER).
LIGHT-TIME(4560E0,0,0) AFTER(79067,0).
COUNT-TIME(1,DOPPLER,RANGE).
COUNT-TIME(1,ANGLES) FROM(79067,200000) TO(79067,210000).
COUNT-TIME(1,DRVID)  FROM(79067,193000) TO(79067,203000).
COUNT-TIME(120,F1 DOPPLER) AFTER(79067,120000) MASK.
COUNT-TIME(60,F2 DOPPLER) FROM(79070,1) TO(79071,1)
ADJUST(RANGE) BY(-100) BEFORE(79067,235959).
MULTIPLY(DRVID) BY(2E-1) AFTER(79069,200000).
TIME-TAG(RANGE) BY(1) FROM(79067,120000) TO(79067,180000) DSS(63).
@EOF
@DELETE,C *ODEDCL.
```

APPENDIX IV

TDF-PRINT and TDF-UNPACK Formats

Table 1. File Identification Logical Record

OBUF Word	IBUF Bit Location	Description		Print Line	Print Columns
1	1-36	Word Count for ODE = 8			
2	37-72	Record Type = 10			
3	73-108	"TRACKI"		1	1-6
4	109-144	"NG DAT"		1	7-12
5	145-180	"A FILE"		1	13-18
6	181-216	" IDR "		1	19-24
7	217-252	Spacecraft ID Number		1	26-27
8	253-264	Last 2 Digits of Year		1	30-31
9	265-280	Day-of-Year	Time File	1	33-35
10	281-288	Hour	Was	1	37-38
11	289-300	Minute	Created	1	40-41
12	301-308	Second		1	43-44
13-145	309-2304	0 (not used)			

Table 2. Pass Summary Logical Records

OBUF Word	IBUF Bit Location	Description		Print Line	Print Columns
1	1-36	Word Count for ODE = 26			
2	37-72	Record Type = 20			
3	73-84	Last 2 Digits of Year			
4	85-100	Day-of-Year	Time of		
5	101-108	Hour	First		
6	109-120	Minute	Data Sample		
7	121-128	Second			
8	129-156	Spacecraft ID Number			
9	157-164	Network ID (see Table 4 for codes)			
10	165-172	Station Number			
11	173-180	Receiver Type (see Table 4 for codes)			
12	181-192	Last 2 Digits of Year			
13	193-208	Day-of-Year	Time of		
14	209-216	Hour	Last		
15	217-228	Minute	Data Sample		
16	229-236	Second			
17	237-272	Pass ID Number			
18	273-288	1-Way Total Doppler Samples			
19	289-308	1-Way Good Doppler Samples			
20	309-324	1-Way Normalized Percentage			
21	325-344	2-Way Total Doppler Samples			
22	345-360	2-Way Good Doppler Samples			
23	361-380	2-Way Normalized Percentage			
24	381-396	3-Way Total Doppler Samples			
25	397-416	3-Way Good Doppler Samples			
26	417-432	3-Way Normalized Percentage			

Table 2. Pass Summary Logical Records (continued)

OBUF Word	IBUF Bit Location	Description	Print Line	Print Columns
27	433-452	3-Way Coherent Total Doppler Samples		
28	453-468	3-Way Coherent Good Doppler Samples		
29	469-488	3-Way Coherent Normalized Percentage		
30	489-504	Range/DRVID Type (see Table 4 for codes)		
31	505-524	Total Range Samples Received		
32	525-540	0		
33	541-576	Total Samples Received		
34	577-596	Total DRVID Samples Received		
35	597-612	0		
36	613-648	Type of Angles (see Table 4 for codes)		
37	649-668	Total Angle Pairs		
38	669-684	Total Good Angle Pairs		
39	685-704	Angle Pairs Normalized Percentage		
40	705-720	Split Pass ID Number		
41	721-740	Last 2 Digits of Year (Time of Acquisition of Signal (AOS))		
42	741-756	Day-of-Year		
43	757-768	Hour		
44	769-776	Minute		
45	777-792	Second		
46	793-828	Last 2 Digits of Year (Time of Loss of Signal (LOS))		
47	829-848	Day-of-Year		
48	849-856	Hour		
49	857-864	Minute		
50	865-884	Second		
51	885-920	Total Doppler Samples Received		
52	921-936	Total Doppler Samples Expected		
53	937-956	Percentage of Doppler Samples Received		
54	957-972	Normalized Percentage of Doppler Samples Received		
55-145	973-2304	0 (not used)		

Table 3. Transmitter/Transponder Logical Records

OBUF Word	IBUF Bit Location	Description	Print Line	Print Columns
1	1-36	Word Count for ODE = 8		
2	37-72	Record Type = 30 (Transponder) = 31 (Transmitter)		
3	73-84	Last 2 Digits of Year ("On Time")	1	1-2
4	85-100	Day-of-Year	1	4-6
5	101-108	Hour	1	8-9
6	109-120	Minute	1	11-12
7	121-128	Second	1	14-15
8	129-156	Spacecraft ID Number	1	17-18

Table 3. Transmitter/Transponder Logical Records (continued)

OBUF Word	IBUF Bit Location	Description	Print Line	Print Columns
9	157-164	Network ID (see Table 4 for codes)	1	20-21
10	165-172	Station Number	1	23-24
11	173-180	Transmitter Type	1	26-27
		0 = S-Band		
		1 = X-Band		
		2 = K-Band		
12	181-192	Last 2 Digits of Year } "Off" Time	1	30-31
13	193-208	Day-of-Year } "Off" Time	1	33-35
14	209-216	Hour } "Off" Time	1	37-38
15	217-228	Minute } "Off" Time	1	40-41
16	229-236	Second } "Off" Time	1	43-44
17	237-252	0		
18	253-288	Transmitter Frequency - H/P*	1	47-52
19	289-324	Transmitter Frequency - L/P*	1	53-59
20-145	325-2304	0 (not used)		

Table 4. Tracking Data Logical Records

OBUF Word	IBUF Bit Location	Description	Print Line	Print Columns
1	1-36	Word Count for ODE = 18 or 64		
2	37-72	Record Type = 90 (Low Rate Data)		
		= 91 (High Rate Data)		
3	73-84	Last 2 Digits of Year } Record Time Tag	1/all	1-2
4	85-100	Day-of-Year } Record Time Tag	1/all	4-6
5	101-108	Hour } Record Time Tag	1/all	8-9
6	109-120	Minute } Record Time Tag	1/all	11-12
7	121-128	Second } Record Time Tag	1/all	14-15
8	129-156	Spacecraft ID Number	1/all	17-18
9	157-164	Network ID		
		2 = Deep Space Network (DSN)		
		3 = Manned Space Flight Network (MSFN)		
		4 = Eastern Test Range (ETR)		
		5 = German Tracking Station (GTS)		
10	165-172	Station Number	1/all	20-21
11	173-180	Downlink Frequency Band	1/all	23
		0 = Not Applicable		
		1 = S-Band		
		2 = X-Band		
		3 = K-Band		

* H/P = high part = variable / 10^4

L/P = low part = (variable modulo 10^4) x 10^3

Table 4. Tracking Data Logical Records (continued)

OBUF Word	IBUF Bit Location	Description	Print Line	Print Columns
12	181-192	Ground Mode 0 = No Doppler, No Range, No DRVID 1 = 1-Way Doppler 2 = 2-Way Doppler 3 = 3-Way Doppler 4 = 3-Way Coherent Doppler 5 = 1-Way, No Doppler 6 = 2-Way, No Doppler 7 = 3-Way, No Doppler 8 = 3-Way Coherent, No Doppler	1/all	24
13	193-200	Range Type 0 = No Range Data 1 = ETR 2 = MARK 1 3 = MARK 1A 4 = TAU 5 = MU 6 = PLOP 7 = PLOP2 8 = MU2	1/RNG	31
14	201-208	Angle Type 0 = No Angle Data 1 = Azimuth/Elevation 2 = Hour Angle/Declination 3 = X/Y	1/ANG	31
15	209-216	DRVID Type 0 = No DRVID Data 1-8 = Same as for Range Type	1/DRV	31
16	217-221	Doppler Good/Bad Indicator**	1/DOP	130
17	222	Doppler Data Tolerance**	1/DOP	26
18	223	0 (not used)		
19	224-227	Bias (one's complement)	1/DOP	123-127
20	228	Range Acquisition Toggle		
21	229	Angle Good/Bad Indicator**	1/ANG	130
22	230-232	Range Data Field Identifier (RDFI) 0 = No Ranging Data if OBUF Word 13 = 0 0 = Range-at-T_0 if OBUF Word 13 > 0 1 = Round Trip Light Time (RTLT), T_1 2 = T_2, T_3 3 = Correlation Voltages 4 = T_0, Carrier Suppression 5 = Range (not at T_0)	1/RNG	26

** In all cases, 0 = Good, On, In Lock, In Tolerance, etc.

In all cases, 1 = Bad, Off, Out of Lock, Out of Tolerance, etc.

Table 4. Tracking Data Logical Records (continued)

OBUF Word	IBUF Bit Location	Description	Print Line	Print Columns
23	233	Transmitter Frequency Tolerance**		
24	234	FTS Standard Indicator**		
25	235	Synthesizer Indicator**		
26	236	Receiver Loop Lock Indicator**	1/DOP	131
27	237	Transmitter/Exciter No. 1 On/Off**	1/DOP	132
28	238	Transmitter/Exciter No. 2 On/Off**		
29	239	Receiver Block Identifier 0 = Block III 1 = Block IV		
30	240-242	Source Designation 1 = Deep Space Network (DSN) otherwise = 1 + (OBUF Word 9)		
31	243-245	Doppler Extractor 0 = On Counter 1 1 = On Counter 2		
32	246-247	Antenna Pointing Status 0 = Auto 1 = Non Auto		
33	248-249	Mutual Station Data Type 0 = Real Data 1 = Test Data		
34	250	Doppler Bias Indicator 0 = Biased 1 = Unbiased		
35	251	SDR Recall Flag 0 = Not SDR Recall Data 1 = SDR Recall Data		
36	252	No Process Flag 0 = Process Data and Pass 1 = Do Not Process Data but Pass		
37	253-288	Sample Time (seconds x 100)	1/DOP	33-36
38	289-324	Doppler Count - H/P*	1/DOP	38-45
39	325-360	Doppler Count - L/P*	1/DOP	46-52
40	361-396	Range Data Field - Part 1 0 if OBUF Word 13 = 0 otherwise, for RDFI = 0. Range-at-T_0 - H/P* 1. Round Trip Light Time 2. T_2 Integration Time Constant 3. Ref. Voltage (one's complement) 4. T_0 Time Tag (seconds past 0-hour) 5. Range (not at T_0) - H/P	1/RNG	100-106

* See footnote on page IV-4
** See footnote on page IV-5

Table 4. Tracking Data Logical Records (continued)

OBUF Word	IBUF Bit Location	Description	Print Line	Print Columns
41	397-432	Range Data Field - Part 2 0 if OBUF Word 13 = 0 otherwise, for RDFI = 0. Range-at-T_0 - L/P* 1. T_1 Integration Time Constant 2. T_3 Integration Time Constant 3. Quad. Voltage (one's complement) 4. Carrier Suppression (one's comp.) 5. Range (not at T_0) - L/P*	1/RNG	107-113
42	433-452	Lowest Ranging Component	1/RNG	123-127
43	453-460	Split Pass ID Number		
44	461-468	Line Number		
45	469-480	Doppler Weight Factor		
46	481-488	Range Weight Factor		
47	489-504	Pass ID Number		
48	505-524	Doppler Multiplier		
49	525-540	DRVID Power/Noise (one's complement x 10)	1/DRV	116-120
50	541-576	Angle 1 (Azimuth/Hour Angle/X x 1000)	1/ANG	100-106
51	577-612	Angle 2 (Elevation/Declination/Y x 1000)	1/ANG	107-113
52	613-648	Doppler Reference Frequency (x 10)	1/DOP	64-73
53	649-684	DRVID (one's complement x 100)	1/DRV	75-85
54	685-720	No. 2 H/R Doppler (H/P*) or 0		
55	721-756	No. 2 H/R Doppler (L/P*) or RTLT	2/RNG	70-74
56	757-792	No. 3 H/R Doppler (H/P*) or 0		
57	793-828	No. 3 H/R Doppler (L/P*) or $T_{acquisition}$	2/RNG	77-81
58	829-864	No. 4 H/R Doppler (H/P*) or 0		
59	865-900	No. 4 H/R Doppler (L/P*) or T_1	2/RNG	84-88
60	901-936	No. 5 H/R Doppler (H/P*) or 0		
61	937-972	No. 5 H/R Doppler (L/P*) or T_2	2/RNG	91-95
62	973-1008	No. 6 H/R Doppler (H/P*) or 0		
63	1009-1044	No. 6 H/R Doppler (L/P*) or T_3	2/RNG	98-102
64	1045-1080	No. 7 H/R Doppler (H/P*) or 0		
65	1081-1116	No. 7 H/R Doppler (L/P*) or Ref. Voltage	2/RNG	105-109
66	1117-1152	No. 8 H/R Doppler (H/P*) or 0		
67	1153-1188	No. 8 H/R Doppler (L/P*) or Quad. Voltage	2/RNG	112-116
68	1189-1224	No. 9 H/R Doppler (H/P*) or 0		
69	1225-1260	No. 9 H/R Doppler (L/P*) or Carrier Supp.	2/RNG	119-123
70	1261-1296	No. 10 H/R Doppler (H/P*) or 0		
71	1297-1332	No. 10 H/R Doppler (L/P*) or Highest Ranging Component	2/RNG	126-130
72	1333-1368	Doppler Residual (one's complement x 1000)	1/DOP	75-85

* See footnote on page IV-4

Table 4. Tracking Data Logical Records (continued)

OBUF Word	IBUF Bit Location	Description	Print Line	Print Columns
73	1369-1404	Range Residual (one's complement)	1/RNG	75-85
74	1405-1422	Angle 1 Residual (one's comp. x 1000)	1/ANG	75-85
75	1423-1440	Angle 2 Residual (one's comp. x 1000)	1/ANG	87-97
76	1441-1443	Uplink Frequency Band and Source ID 0 = S-Band, TRK-2-14 1 = S-Band, TRK-2-15 2 = X-Band, TRK-2-15 7 = S-Band, SDR	1/DOP	25
77	1444-1446	Angle Mode 0 = Auto Track 1 = Manual Aided 2 = Computer 3 = Sidereal 4 = Brake		
78	1447-1448	Conscan Mode 0 = Off 1 = Closed Loop 2 = Open Loop		
79	1449	Angle 1 Residual Tolerance**		
80	1450	Angle 2 Residual Tolerance**		
81	1451-1453	Doppler Channel Number		
82	1454	Frequency Standard Reference 0 = Backup 1 = Prime		
83	1455-1458	Doppler Receiver Reference		
84	1459-1460	Exciter VCO Reference 0 = Short 1 = Synthesizer 2 = Not Available		
85	1461	DTK Software Configuration**		
86	1462	DTK Hardware**		
87	1463	Doppler Residual Tolerance**		
88	1464	Doppler Noise Tolerance**		
89	1465	Total Slipped Cycles Tolerance**		
90	1466-1468	Reference Channel for Differential Doppler Phase		
91	1469-1476	Figure of Merit (one's complement x 10)		
92	1477-1494	Slipped Cycles During Count (one's complement)		
93	1495-1512	Total Slipped Cycles During Count	1/DOP	116-120
94	1513-1530	Doppler Noise (x 1000)	1/DOP	100-106
95	1531-1548	Received Signal Strength (one's complement x 10)	1/DOP	107-113
96	1549-1584	Differential Doppler Phase (one's complement x 1000)	1/DOP	87-97

** See footnote on page IV-5

Table 4. Tracking Data Logical Records (continued)

OBUF Word	IBUF Bit Location	Description	Print Line	Print Columns
97	1585	Range Modulation On/Off**		
98	1586	Prime Ranging Channel 0 = S-Band 1 = X-Band		
99	1587	Pipelining On/Off**		
100	1588	Chopper Frequency On/Off**		
101	1589	Carrier Suppression Units 0 = Volts 1 = dB		
102	1590	Range Validity**	1/RNG	130
103	1591	Range Calibration Tolerance**		
104	1592	Range Configuration Change Flag**		
105	1593	Range Power/Noise Tolerance**		
106	1594	Range Residual Tolerance**		
107	1595	Pseudo DRVID Tolerance**		
108	1596	Differenced S-X Range Tolerance**		
109	1597-1600	Receiver Number		
110	1601	Exciter Number 0 = Block III 1 = Block IV		
111	1602-1603	Amplifier Number		
112	1604-1605	Amplifier Type 0 = S-Band Maser 1 = X-Band Maser 2 = Parametric 3 = FET		
113	1606	Transmitter Power Indicator 0 = Low Power 1 = High Power		
114	1607	Transmitter Power Units 0 = Volts 1 = Kilowatts		
115	1608-1620	Transmitter Power (x 100 if OBUF Word 1 = 18)	2/RNG	63-67
116	1621-1644	Range Calibration (x 100)	2/RNG	26-33
117	1645-1656	Range Power/Noise (one's complement x 10)	1/RNG	116-120
118	1657-1692	Average Doppler Residual (one's complement x 1000)		
119	1693-1728	Pseudo DRVID (one's complement x 100)	2/RNG	12-23
120	1729-1764	Differenced S-X Range (one's complement x 100) or Ramp Delay Time (nanoseconds)	1/RNG, 1/PRF	87-97
121	1765-1786	Z Correction (one's complement x 100)	2/RNG	46-53
122	1787-1800	Spacecraft Delay	2/RNG	36-43
123	1801-1833	DRVID Noise (x 100)	1/DRV	123-127
124	1834	DRVID Validity**	1/DRV	130

** See footnote on page IV-5

Table 4. Tracking Data Logical Records (continued)

OBUF Word	IBUF Bit Location	Description	Print Line	Print Columns
125	1835	DRVID Noise Tolerance**		
126	1836	DRVID Power/Noise Tolerance**		
127	1837-1872	Differenced S-X DRVID (one's complement x 100)	1/DRV	87-97
128	1873-1877	Ramp Controller Indicator 0 = POCA Controller 1 = DCO Controller 2 = New Controller		
129	1878-1908	Programmed Frequency Ramp Rate (one's complement x 1000000)	1/PRF	64-73
130	1909-1944	Programmed Frequency / 10	1/PRF	38-45
131	1945-1980	Programmed Frequency modulo 10, x 1000000	1/PRF	46-52
132	1981-1998	High Rate Noise	1/RMV	75-85
133	1999-2016	Medium High Rate Noise	1/RMV	87-97
134	2017-2034	Medium Low Rate Noise	1/RMV	100-106
135	2035-2052	Low Rate Noise	1/RMV	107-113
136	2053-2066	New Medium Low Rate Noise Indicator**		
137	2067	New Low Rate Noise Indicator**		
138	2068	Static Phase Error Units 0 = Volts 1 = Degrees		
139	2069-2076	Figure of Merit (one's complement x 10)	1/RMV	116-120
140	2077-2088	Static Phase Error (one's complement x 10)	1/RMV	123-127
141	2089-2100	1st [ASCII] Character of Predict Set ID		
142	2101-2108	2nd [ASCII] Character of Predict Set ID		
143	2109-2116	3rd [ASCII] Character of Predict Set ID		
144	2117-2124	4th [ASCII] Character of Predict Set ID		
145	2125-2160	Transmitter/Exciter Frequency (x 10)	1/DOP	54-62
---	2161-2304	0 (not used)		

NOTES:

1. Print lines are labeled with a 3-letter record type identifier. Only range (RNG) records have two lines of print per sample.

2. OBUF words 28, 29, 32, 43-48, 84, 90-92, 101, 110, 114, and 132-144 are not used (i.e., are set to 0) if OBUF word 1 = 64.

** See footnote on page IV-5

DUMP OF TAPE ROUT1

VOYAGER 1 10/21/80-10/27/80
77-084A-02F
D-59517 C-23560

INPUT TAPE ROUT1 ON TU0
DATA INPUT 09 FL 1 1 1

FILE	1 RECORD	1 LENGTH	10752BYTES						
(0)	000000000010	000000000012	312706102016	231405110631	060513162112	051611270505	000000000037	012000245415	
(48)	004213600000	066761646705	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(96)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(144)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(192)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(240)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(288)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	END OF
(336)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	ID RECORD
(384)	000000000010	000000000036	012000223427	007300000000	003700000000	014300266427	007316600000	000000700173	
(432)	000041642350	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(480)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(528)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(576)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(624)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(672)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	END OF TRANSMIT
(720)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	TRANSPOND RECORD
(768)	000000000022	000000000132	012000223427	007314400000	003700425401	000601400000	020041742000	000000000000	
(816)	000001162331	000040343122	000000000027	000000350330	000002600000	000000000000	000000000000	000000000000	
(864)	000000000000	001510233740	000000000000	000000000000	000000023713	000000000000	000000000376	000000000000	
(912)	000000000173	000000000000	000000000015	000000000000	000000000000	000000000000	000000000000	000000000000	
(960)	000000000000	000000000000	000000000147	000000000000	000000000000	000000000000	000000000000	000000000000	
(1008)	001400174000	000000000000	000000000000	000000000000	000017740000	315637000147	777777776751	777777777324	
(1056)	000000101024	777777701236	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000	
(1104)	000000000000	000030000000	000000000000	000000000000	002200000000	000000000000	000000000000	000000000000	
(1152)	000000000022	000000000132	012000223427	007314400000	003700425402	000601400000	020041742000	000000000000	
(1200)	000000271522	000036717546	000000000026	000045251220	000002600000	000000000000	000000000000	000000000000	
(1248)	000000000000	001510233740	000000000000	000000000000	000000023713	000000000000	000000000376	000000000000	
(1296)	000000000173	000000000000	000000000015	000000000000	000000000000	000000000000	000000000000	000000000000	
(1344)	000000000000	000000000000	000000000147	000000000000	000000000000	000000000000	000000000000	000000000000	
(1392)	001400174000	000000000000	000000000000	000000000000	000023740000	316065000153	777777774164	777777777160	
(1440)	000000101024	777777701200	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000	
(1488)	000000000000	000030000000	000000000000	000000000000	002200000000	000000000000	000000000000	000000000000	
(1536)	000000000022	000000000132	012000224000	000000000000	003700425401	000200000000	000240462000	000000013560	
(1584)	000001164351	000041342140	000000000000	777777777777	000000000000	000000000000	000000000000	000000000000	
(1632)	000000000000	001510233740	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(1680)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(1728)	000000000000	000000000000	000000000000	000000000000	000000000000	777777776761	000000000000	000000000000	
(1776)	001523401000	000000000000	000012774763	777777777767	757700000000	000000000000	000000000000	000000000000	
(1824)	000000000000	000000000000	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000	
(1872)	000000000000	000030000000	000000000000	001510233740	002200000000	000000000000	000000000000	000000000000	
(1920)	000000000022	000000000132	012000224000	000000000000	003700425401	000000001000	020001742000	000000000000	
(1968)	000000000000	777777777777	000000000000	777777777777	000000000000	000000000000	000000000000	000001266324	
(2016)	000000001025	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(2064)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(2112)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000052000040	
(2160)	076000174000	000000000000	000000000000	000000000000	757700000000	000000000000	000000000000	000000000000	
(2208)	000000000000	000000000000	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000	
(2256)	000000000000	000030000000	000000000000	000000000000	002200000000	000000000000	000000000000	000000000000	
(2304)	000000000022	000000000132	012000224000	000000000000	003700425402	000200000000	000240462000	000000013560	
(2352)	000000273715	000025662215	000000000000	777777777777	000000000000	000000000000	000000000000	000000000000	
(2400)	000000000000	001510233740	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(2448)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(2496)	000000000000	000000000000	000000000000	000000000000	000000000000	777777774175	000000000000	000000000000	
(2544)	001564401000	000000000000	000021775055	777777777767	757700000000	000000000000	000000000000	000000000000	
(2592)	000000000000	000000000000	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000	
(2640)	000000000000	000030000000	000000000000	001510233740	002200000000	000000000000	000000000000	000000000000	
(2688)	000000000022	000000000132	012000224000	000000000000	003700437401	000701400000	020041742000	000000000000	
(2736)	000000000015	000020055577	000000000206	000010234366	000002600000	000000000000	000000000000	000000000000	

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(2784)	000000000000	000000000000	000000000000	000000000000	000000023714	000000000000	000000000000	000000000000
(2832)	000000000173	000000000000	000000000015	000000000000	000000000000	000000000000	777777777770	000000000000
(2880)	777777777771	000000000000	000000000140	000000000000	000000000000	000000000000	000000000000	000000000000
(2928)	001400174000	000000000000	000000000000	000000000000	000203740000	360055000000	000000000000	000000000000
(2976)	000000000000	777777700000	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000
(3024)	000000000000	000030000000	000000000000	000000000000	002200000000	000000000000	000000000000	000000000000
(3072)	000000000022	000000000132	012000224000	000000000000	003700437402	000701400000	020041742000	000000000000
(3120)	000000000015	000020055577	000000000206	000010234366	000002600000	000000000000	000000000000	000000000000
(3168)	000000000000	000000000000	000000000000	000000000000	000000023714	000000000000	000000000000	000000000000
(3216)	000000000173	000000000000	000000000015	000000000000	000000000000	000000000000	777777777777	000000000000
(3264)	000000000002	000000000000	000000000140	000000000000	000000000000	000000000000	000000000000	000000000000
(3312)	001400174000	000000000000	000000000000	000000000000	000203740000	354416200000	000000000000	000000000000
(3360)	000000000000	777777700000	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000
(3408)	000000000000	000030000000	000000000000	000000000000	002200000000	000000000000	000000000000	000000000000
(3456)	000000000022	000000000132	012000224000	000100000000	003700425401	000200000000	000240462000	000000013560
(3504)	000001200512	000003456730	000000000000	777777777777	000000000000	000000000000	000000000000	000000000000
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(3696)	001523401000	000000000000	000007774763	000000000030	757700000000	000000000000	000000000000	000000000000
(3744)	000000000000	000000000000	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000
(3792)	000000000000	000030000000	000000000000	001510233740	002200000000	000000000000	000000000000	000000000000
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(3888)	000000311256	000016077604	000000000000	777777777777	000000000000	000000000000	000000000000	000000000000
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(4176)	000000000000	000030000000	000000000000	001510233740	002200000000	000000000000	000000000000	000000000000
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(4272)	000001214652	000017666347	000000000000	777777777777	000000000000	000000000000	000000000000	000000000000
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(5136)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
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(5232)	001564401000	000000000000	000017775056	000000000023	757700000000	000000000000	000000000000	000000000000
(5280)	000000000000	000000000000	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000
(5328)	000000000000	000030000000	000000000000	001510233740	002200000000	000000000000	000000000000	000000000000
(5376)	000000000022	000000000132	012000224000	000300000000	003700425401	000200000000	000240462000	000000013560
(5424)	000001231012	000040062614	000000000000	777777777777	000000000000	000000000000	000000000000	000000000000
(5472)	000000000000	001510233740	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
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(5664)	000000000000	000000000000	000000000007	000000000000	000000000000	777777777777	000000000000	000000000000
(5712)	000000000000	000030000000	000000000000	001510233740	002200000000	000000000000	000000000000	000000000000
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(5808)	000000344161	000004156164	000000000000	777777777777	000000000000	000000000000	000000000000	000000000000
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(5904)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000

MOORE BUSINESS FORMS INC. F... PRINTED IN U.S.A.

(7776)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(7824)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(7872)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
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(8064)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
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(8688)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
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(9552)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(9600)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
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(9696)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
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(10320)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(10368)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(10416)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(10464)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(10512)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(10560)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(10608)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(10656)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(10704)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000

FILE	INPUT RECS.	DATA RECORDS INPUT	MAX. SIZE	READ ERROR SUMMARY PERM	ZERO B	SHORT	UNDEF.	INPUT RETRIES #RECS.	TOTAL#
1	1578	1579	8064	0	0	0	0	2	3

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DUMP OF TAPE ROUT1

VOYAGER 2 8/7/81-8/16/81
77-076A-02D
D-59511 C-23554

INPUT TAPE ROUT1 ON TU1
DATA INPUT DS FL 1 1 1

FILE	1 RECORD	1 LENGTH	10752BYTES						
(0)	000000000010	000000000012	312706102016	231405110631	060513162112	051611270505	000000000040	012100162013	
(48)	000402400000	106262636105	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(96)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
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(192)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(240)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(288)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	END OF
(336)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	ID RECORD
(384)	000000000010	000000000056	012100155027	006700000000	004000000000	014300266427	007316600000	000000700420	
(432)	000004063470	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(480)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(528)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
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(624)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(672)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	END OF TRASMIT
(720)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	TRANSPON RECORD
(768)	000000000022	000000000132	012100155027	006707400000	004000407001	000601400000	020041742000	000000000000	
(816)	000001267235	000020176172	000000000512	000027200230	000003400000	000000000000	000000000000	000000000000	
(864)	000000000000	001507663244	000000000000	000000000000	000000023501	000000000125	000000000000	000000000000	
(912)	000000000205	000000000000	000000000020	000000000000	000000000000	000000000000	777777777650	000000000000	
(960)	777777777475	000000000000	000000000136	000000000000	000000000000	000000000000	000004735306	000000000000	
(1008)	001400174000	000000000000	000000000000	000000000000	000017740000	302431600102	000000000000	000000001130	
(1056)	000000112470	777442541246	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000	
(1104)	000000000000	000030000000	000000000000	000000000000	002200000000	000000000000	000000000000	000000000000	
(1152)	000000000022	000000000132	012100155027	006707400000	004000407002	000601400000	020041742000	000000000000	
(1200)	000000566606	000034164643	000000000512	000025626150	000003400000	000000000000	000000000000	000000000000	
(1248)	000000000000	001507663244	000000000000	000000000000	000000023501	000000000000	000000000125	000000000000	
(1296)	000000000205	000000000000	000000000020	000000000000	000000000000	000000000000	777777777676	000000000000	
(1344)	000000000530	000000000000	000000000136	000000000000	000000000000	000000000000	000004734745	000000000000	
(1392)	001400174000	000000000000	000000000000	000000000000	000023740000	271005000142	000000000000	000000000620	
(1440)	000000112470	777637341165	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000	
(1488)	000000000000	000030000000	000000000000	000000000000	002200000000	000000000000	000000000000	000000000000	
(1536)	000000000022	000000000132	012100155400	000000000000	004000406001	000300000000	000240542000	000000013560	
(1584)	000000461340	000000456510	000000000000	777777777777	000000000000	000000000000	000000000000	000000000000	
(1632)	000000000000	001507663244	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(1680)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(1728)	000000000000	000000000000	000000000000	000000000000	000000000000	000006740231	000000000000	000000000000	
(1776)	001461401000	000034000044	000012774717	777777777742	757700000000	000000000000	000000000000	000000000000	
(1824)	000000000000	000000000000	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000	
(1872)	000000000000	000030000000	000000000000	001507663244	002200000000	000000000000	000000000000	000000000000	
(1920)	000000000022	000000000132	012100155400	000000000000	004000406001	000000001000	020001742000	000000000000	
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(2016)	000001276354	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(2064)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
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(2736)	000001235523	000045005103	000000000000	777777777777	000000000000	000000000000	000000000000	000000000000	

MOORE BUSINESS FORMS INC. F 1413 PRINTED IN U.S.A.

(2784)	000100000000	001507663243	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
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(2880)	000000000000	000000000000	000000000000	000000000000	000000000000	000006716350	000000000000	000000000000	
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(2976)	000000000000	000000000000	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000	
(3024)	000000000000	000030000000	000000000000	001507663243	002200000000	000000000000	000000000000	000000000000	
(3072)	000000000022	000000000132	012100155400	000000000000	004000407001	000000001000	020001742000	000000000000	
(3120)	000000000000	777777777777	000000000000	777777777777	000000000000	000000000000	000000000000	000000027613	
(3168)	000901276472	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(3216)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(3264)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	777772777773	
(3312)	076000174000	000000000000	000000000000	000000000000	757700000000	000000000000	000000000000	000000000000	
(3360)	000000000000	000000000000	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000	
(3408)	000000000000	000030000000	000000000000	000000000000	002200000000	000000000000	000000000000	000000000000	
(3456)	000000000022	000000000132	012100155400	000000000000	004000407002	000200000000	000240462000	000000013560	
(3504)	000000426031	000017255734	000000000000	777777777777	000000000000	000000000000	000000000000	000000000000	
(3552)	000000000000	001507663243	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(3600)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
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(3696)	001564401000	000104000104	000012775073	777777777775	757700000000	000000000000	000000000000	000000000000	
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(3936)	000000000000	001507663245	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(3984)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(4032)	000000000000	000000000000	000000000000	000000000000	000006744270	000000000000	000000000000	000000000000	
(4080)	001461401000	000034000050	000012774715	777777777724	757700000000	000000000000	000000000000	000000000000	
(4128)	000000000000	000000000000	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000	
(4176)	000000000000	000030000000	000000000000	001507663245	002200000000	000000000000	000000000000	000000000000	
(4224)	000000000022	000000000132	012100155400	000100000000	004000406002	000300000000	000240542000	000000013560	
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(4320)	000000000000	001507663245	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
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(4464)	001662401000	000113000113	000033775006	777777777724	757700000000	000000000000	000000000000	000000000000	
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(4560)	000000000000	000030000000	000000000000	001507663245	002200000000	000000000000	000000000000	000000000000	
(4608)	000000000022	000000000132	012100155400	000100000000	004000407001	000200000000	000240462000	000000013560	
(4656)	000001257262	000034067320	000000000000	777777777777	000000000000	000000000000	000000000000	000000000000	
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(4752)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(4800)	000000000000	000000000000	000000000000	000000000000	000006721753	000000000000	000000000000	000000000000	
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(4896)	000000000000	000000000000	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000	
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(5088)	000000000000	001507663244	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(5136)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
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(5328)	000000000000	000030000000	000000000000	001507663244	002200000000	000000000000	000000000000	000000000000	
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(5424)	000001440424	000021010243	000000000465	000033435300	000003400000	000000000000	000000000000	000000000000	
(5472)	000000000000	001507663253	000000000000	000000000000	000000023501	000000000000	000000000672	000000000000	
(5520)	000000000205	000000000000	000000000020	000000000000	000000000000	000000000154	000000000000	000000000000	
(5568)	000000000245	000000000000	000000000136	000000000000	000000001000	000000000000	000004476021	000000000000	
(5616)	001400174000	000000000000	000000000090	000000000000	000017740000	302431600105	000000000000	777777777160	
(5664)	000000111340	777442541246	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000	
(5712)	000000000000	000030000000	000000000000	000000000000	002200000000	000000000000	000000000000	000000000000	
(5760)	000000000022	000000000132	012100155400	000106600000	004000407002	000601400000	020041742000	000000000000	
(5808)	000001016533	000000547044	000000000465	000032077000	000003400000	000000000000	000000000000	000000000000	
(5856)	000000000000	001507663253	000000000000	000000000000	000000023501	000000000000	000000000672	000000000000	
(5904)	000000000205	000000000000	000000000020	000000000000	000000000000	000000000107	000000000000	000000000000	

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(7776)	000000127622	000000000005	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(7824)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(7872)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000123777746
(7920)	070000174000	000000000000	000000000000	000000000000	757700000000	000000000000	000000000000	000000000000	000000000000
(7968)	000000000000	000000000000	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000	
(8016)	000000000000	000000000000	000000000000	000000000000	002200000000	000000000000	000000000000	000000000000	
(8064)	000000000022	000000000132	012100162015	000000000000	004000436402	000100000000	000240542000	000000013560	
(8112)	000000763305	000014667135	000000000000	777777777777	000000000000	000000000000	000000000000	000000000000	
(8160)	000000000000	001507657123	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(8208)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(8256)	000000000000	000000000000	000000000000	000000000000	000000000000	000000260165	000000000000	000000000000	
(8304)	001566401000	000000000000	000032775004	000000000147	757700000000	000000000000	000000000000	000000000000	
(8352)	000000000000	000000000000	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000	
(8400)	000000000000	000030000000	000000000000	001507657123	002200000000	000000000000	000000000000	000000000000	
(8448)	000000000022	000000000132	012100162015	000000000000	004000437401	000100000000	000240462000	000000013560	
(8496)	000000102437	000004055136	000000000000	777777777777	000000000000	000000000000	000000000000	000000000000	
(8544)	000000000000	001507657123	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(8592)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(8640)	000000000000	000000000000	000000000000	000000000000	000000000000	000000057613	000000000000	000000000000	
(8688)	001523401000	000000000000	000007774741	777777777640	757700000000	000000000000	000000000000	000000000000	
(8736)	000000000000	000000001000	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000	
(8784)	000000000000	000030000000	000000000000	001507657123	002200000000	000000000000	000000000000	000000000000	
(8832)	000000000022	000000000132	012100162015	000000000000	004000437401	000000001000	020001742000	000000000000	
(8880)	000000000000	777777777777	000000000000	777777777777	000000000000	000000000000	000000000000	000001201243	
(8928)	000001276721	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(8976)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(9024)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000017000044	
(9072)	070000174000	000000000000	000000000000	000000000000	757700000000	000000000000	000000000000	000000000000	
(9120)	000000000000	000000000000	000000000007	000000000000	000000000000	000000000000	777777777777	000000000000	
(9168)	000000000000	000030000000	000000000000	000000000000	002200000000	000000000000	000000000000	000000000000	
(9216)	000000000022	000000000132	012100162015	000000000000	004000437402	000100000000	010240462000	000000013560	
(9264)	000001000344	000016736021	000000000000	777777777777	000000000000	000000000000	000000000000	000000000000	
(9312)	000000000000	001507657123	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(9360)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(9408)	000000000000	000000000000	000000000000	000000000000	000000000000	000000260331	000000000000	000000000000	
(9456)	001566401000	000000000000	000020775070	777777777640	757700000000	000000000000	000000000000	000000000000	
(9504)	000000000000	000000000000	000000000007	000000000000	000000000000	777777777777	000000000000		
(9552)	000000000000	000030000000	000000000000	001507657123	002200000000	000000000000	000000000000	000000000000	
(9600)	000000000022	000000000132	012100162024	004307600000	004000436401	000000000000	020041642000	000000000000	
(9648)	000000000000	777777777777	000000000000	777777777777	000000000000	000000000000	000000000000	000000000000	
(9696)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(9744)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(9792)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(9840)	001400174000	000000000000	000000000000	000000000000	757700000000	000000000000	000000000000	000000000000	
(9888)	000000000000	000000000000	000000000007	000000000000	000000000000	000020630002	000000411420	000000000000	
(9936)	000000000000	000030000000	000000000000	000000000000	002200000000	000000000000	000000000000	000000000000	
(9984)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(10032)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(10080)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(10128)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(10176)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(10224)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(10272)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(10320)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(10368)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(10416)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(10464)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(10512)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(10560)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(10608)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(10656)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	
(10704)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	

FILE	INPUT RECS.	DATA RECORDS INPUT	MAX. SIZE	READ ERROR SUMMARY PERM	ZERO B	SHORT	UNDEF.	INPUT RETRIES #RECS.	TOTAL#
1	3067	3068	8064	0	0	0	0	0	0

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