

Internal Report No. 49

February 4, 1974

STRIP PROGRAM USER'S GUIDE

by

Tom Garrard

and

Alex Petruncola

## TABLE OF CONTENTS - OUTLINE

- I. General Remarks
- II. Input
  - A. Description of the Command Dialog
  - B. First Level Commands
  - C. Lower Level Commands
    - 1) Time Selection Commands
    - 2) Event Selection Commands
    - 3) Parameter Selection Commands
    - 4) Display Commands
  - D. Storing Commands
  - E. Miscellaneous Other Messages
  - F. Sample Dialog
- III. Output
  - A. Program Parameter Record
  - B. Orbital Parameter Record
  - C. Experiment Status Record
  - D. Event Records
  - E. Rate Records

numbers are specified in the usual SRLSYS notation, e.g., M2:3 means file 3 of mag tape unit 2. One replies either Y for yes or N for no to the orbit data question. See the sample dialog for an example.

The program continues the dialog by typing UW>, which is a request for a first level command. The > symbol is used to identify command requests. The mnemonic UW derives from the UNCLE WINDY program, from which STRIP was adapted. The user replies with one of the first level commands, e.g., TI for time. The program then requests the information (the lower level commands) appropriate to that type of command. Thus, continuing the above example, the computer would type TI> and the user would specify beginning and ending times and summation interval lengths.

Commands normally use characters A-Z, 0-9, -, \*, and ALT-MODE. Typing ALT-MODE as part of any command string will cause the program to return to the first command level (UW>). ALT-MODE does not echo on the TTY. Control characters CTRL C, CTRL P, RUB-OUT, etc. have their usual meanings. The CTRL P causes STRIP to restart at the initial dialog. Other characters, in particular blanks, are ignored by the program and may be used to improve readability.

When a tape section is ended, the program will return to the first command level. The tapes will be positioned at their last positions. If additional commands are entered and executed, the second set of data will appear in the files following the first set of data.

### C. Lower Level Commands

Lower level commands are requested when any of the first four first level commands listed above are given. The lower level commands are requested by typing the first level command followed by a > character. Thus, for example, if the user specifies the TI command, the lower level commands are requested by typing TI>.

#### 1) Time Selection Commands

In response to TI> the user may type any of the following:

BG <TIME> Beginning time for tape section of interest.

EN <TIME> Ending time for tape section.

IN <TIME> Length of intervals that tape section will be divided into.

NOTE: Each interval will correspond to one STRIP tape output file. Processing always ends at end time. The last interval may be truncated.

<TIME> may be any of the following:

U       yy ddd hh mm    universal (GMT) time in years, days, hours, and minutes.

T       yy ddd n        time (GMT) in years, days, and milliseconds.

C       n               pseudo-sequence counter value.

#### 2) Event Selection Commands

In response to VN> the user first specifies one of 24 possible event types using the OP lower level command, then specifies the properties of that event type using the DE, AL, etc. lower level commands. This sequence may be repeated as many as 24 times. The lower level commands used are:

- VT           Selects event types corresponding to the VT bits in the abstract tape. Nine c2 characters are required, corresponding, respectively to VT1 (NEUT), VT2 (PEN), VT3 (D0\*), VT4, (D01\*), VT5 (ELO), VT6 (EHI), VT7, (PLO), VT8 (PHI), and VT9 (PMIS).
- LS c2       Determines if events meeting this specification should be listed and counted (1 for yes).
- CT c2       Determines if events meeting this specification should be counted only (1 for yes).

3)       Parameter Selection Commands

In response to PM> two lower level commands are specified, HP and SP. Each of the two is followed by 16 c2 characters which specify parameters for which a significant change will cause a sample halt or end-of-file (HP) or will cause a record to be skipped (SP). The parameters are, in order,

- i)        Command status
- ii)       Spin period
- iii)     Temperature
- iv)      OA/TM Mode
- v)       Bit rate
- vi)      Experiment ON/OFF
- vii)     Orbit number
- viii)    Abstract tape number
- ix)      Abstract program number
- x)       Experiment tape number

To use an overlay, use monitor L command to load overlay after STRIP is in core. Use B 1000 command to jump to STRIP. (If 1000 is made the start address for each overlay, the G command can be used to go to STRIP after loading an overlay).

E. Miscellaneous Other Messages

If the orbit tape does not cover the necessary time interval, one of the following messages will be typed:

EARLIER ORBIT TAPE NEEDED. PRESS CR WHEN READY.

LATER ORBIT TAPE NEEDED. PRESS CR WHEN READY.

If CR is typed, the program will read and process the newly mounted orbit tape. If some other character is typed, followed by CR, then the search for an orbit record will end. The output tape will have the orbit record missing.

The program will automatically display commands for each run, after the GO command is given.

Various error messages are explained in the program listing.

F. Sample Dialog

User responses are underlined here for clarity.

STRIP PROGRAM V4

ABST TAPE ON UNIT M3

STRIP TAPE ON UNIT M2:2

DO YOU WANT ORBIT DATA? N

UW>TI

TI>IN U 00 001

; interval length of one day

- 4 Rates
- 5 Final Experiment Status, Changes, Event Count
- 6 Final Orbit Record
- A. Program Parameter Record

There will be one or more of these at the beginning of each file. These records specify the commands given to generate the file. Once in core, the format is:

<u>1st byte this line</u>	<u>No. bytes this line</u>	<u>Description</u>
0	2	FILE
2	2	REC
4	2	KEY = 0
6	6	Zero fill
12	1848	EBCDIC message, 22 lines of 84 bytes each
1860	72	Zero fill

There will be as many records as are necessary to contain the entire message.

B. Orbital Parameter Records

If requested there will be two of these records - initial (KEY = 1) and final (KEY = 6). The format is:

<u>1st Byte This Line</u>	<u>No. Bytes This Line</u>	<u>Value</u>	<u>Units</u>	<u>Types</u>
0	2	FILE		
2	2	REC		
4	2	KEY = 1 or 6		
6	6	Zero fill		

1st Byte This Line	No.Bytes This Line	Value	Units	Types
144	4	Longitude	Degrees	Real ↑
148	4	Latitude	Degrees	
152	4	Satellite-Moon Dist.	KM	
156	4	Satel.-Moon    to GEI-X	KM	
160	4	(1,1)	GSE to GSM Transform Matrix	
164	4	(1,2)		
168	4	(1,3)		
172	4	(2,1)		
176	4	(2,2)		
180	4	(2,3)		
184	4	(3,1)		
188	4	(3,2)		
192	4	(3,3)		
196	4	(1,1)	GEI to GSE Transform Matrix	
200	4	(1,2)		
204	4	(1,3)		
208	4	(2,1)		
212	4	(2,2)		
216	4	(2,3)		
220	4	(3,1)		
224	4	(3,2)		
228	4	(3,3)		
232	4	Rt. Ascension	Degrees	
236	4	Declination	Degrees	
240	4	Rt. Ascension	Degrees	
244	4	Declination	Degrees	
248	4	Magnitude of Velocity	KM/SEC	
252	4	Zero Fill		
256	4			
260	4			
264	4	Satellite-Earth-Sun Angle	Degrees	
268	4	Satellite-Earth-Moon Angle	Degrees	
272	4	Theta	Degrees	
276	4	Phi	Degrees	Real ↓



C. Experiment Status Record

There will be two of these records - - initial (KEY=2) and final (KEY=5).

The format is:

1st Byte This Line	No. of Bytes This Line	Notation	Description
Ø	2	FILE	STRIP tape file number
2	2	REC	STRIP tape record number
4	2	KEY	=2 initial, =5 final
6	6		Zero fill
12	6	ATN	Abstract tape # (EBCDIC)
18	2	ARN	Abstract tape record number
2Ø	6	XTN	Experiment tape # (EBCDIC)
26	2	APV	Abstracting program version #
28	4	XRN	Experiment tape record numbers (4-1 Byte numbers, 1 for each page of data in first or last album)
32	4	PSC	Pseudosequence counter (beginning of album)
36	2	DAY	Day number (Jan 1 = ØØ1)
38	2	GAP	Gap counter (number of missing albums since previous record)
4Ø	4	MSC	Millisecond in day of 1st bit of album
44	2	HR	GMT hour (0 to 23)
46	2	MIN	GMT minute (0 to 59)
48	2	YR	Year of data (72 = 1972)
5Ø	2	XFN	Experiment tape file number
52	2	ONF	Experiment power Ø = ON, 1 = OFF
54	2	OTM	OA/TM mode Ø = OA Slave, 1 = TM Slave
56	2	TMP	Instrument temperature (in 1/1Ø <sup>0</sup> C)
58	2	SP	Spin period (MSEC)
60	2	CST	Command status. If DN disabled then N+5th most significant bit is '1'.

The 16 bits in the R-bits word are stored in order with leading zeros and R11 in the least significant byte (LSB):

```

0 0 0 R0 R1 R2H R3 R4 R5 R5H R6 R7 R8 R9 R10 R11
MSB                                     LSB

```

The VT bits are stored in a similar format with seven leading zeros and VT9 in the LSB. The miscellaneous bits are, in order:

```

0 AT1 AT2 AT3 Y1 Y0 UY RE O X N UN RE RX DQ1 DQ2

```

Bit meanings are discussed in the abstract tape writeup.

#### E. Rate Records

Rate records contain four blocks of data with count, time, rates, and (error)<sup>2</sup> information, with, as usual, FILE, REC, and KEY.

Once read into S/370 core, the information in the buffer may be accessed as follows:

```

FILE, REC, KEY, ZEROFILL (3), COUNT (120), NORM (120), TIME (120),
ERR (120)

```

where:	FILE	2 Byte Integer, File Number
	REC	2 Byte Integer, Record Number
	KEY	2 Byte Integer, = 4
	ZEROFILL	2 Byte Integer of zero fill
	COUNT	4 Byte Integer, Number of Rate Counts
	NORM	4 Byte Real, Normalized Rate (COUNT/TIME)
	TIME	4 Byte Integer, Accumulation Time (in msec)
	ERR	4 Byte Real, Square of the Error (NORM <sup>2</sup> /COUNT)