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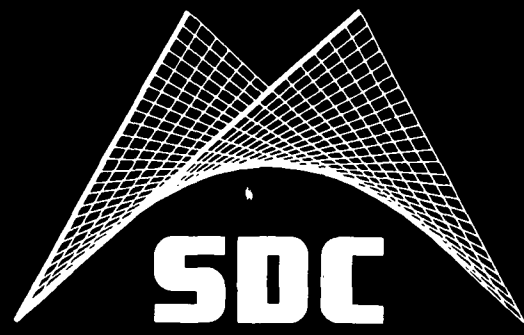

TM-1251/000/00

Proposal for Greater Flexibility in Reset Tape Formats

14 May 1963

TM-1251/000/00

TECHNICAL MEMORANDUM

(TM Series)

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Proposal for Greater Flexibility in Reset Tape Formats

by

S. B. Warshawsky
H. W. Houghton

14 May 1963

Approved by

J. D. Marioni

SYSTEM DEVELOPMENT CORPORATION
2500 COLORADO AVE.
SANTA MONICA
CALIFORNIA

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I. INTRODUCTION & STATEMENT of PROBLEM

When the sub-routine RESET was orginally programmed, it was designed for use with one or two specific vehicle series. Since that time several other series have been added to the Air Force satellite program. With each new series there has been a new data storage requirement, necessitating a new modification to RESET and a new Reset Tape format. Also, Augumentation has imposed changes to the format of the Reset Tape, forcing a modification which made two versions of RESET necessary. This is due to the fact that the present RESETs have the format directory internal to themselves.

Now a new difficulty has arisen. The Air Force is no longer confining the vehicle number of a given project to the original series, i.e., 1100, 1200 series. At present RESET relies upon the vehicle number series to determine the format of the Reset Tapes. RESET will no longer be able to support all vehicles if it continues to choose its format from the vehicle number, which in turn may be chosen effectively at random.

Section II of this document contains the proposed solution to the above stated problem, and Section III the format changes to existing programs necessary to accomplish it.

In addition, in this document and all subsequent documents concerning information on the Reset Tapes, the term "data blocks" will be used whenever the terms "files" or "psuedo files" have been used in the past. This terminology change is being made in an attempt to prevent continuation of confusing labeling.

June 15, 1963 has been set as the final date for review of this document. If no comments or guidance instructions are received prior to this date, complete acceptance and approval of this proposal will be assumed.

II. PROPOSED SOLUTION

All currently existing Reset Tapes have one thing in common--namely, each data block contained in it is definitely defined as to length and content. Unfortunately these definitions differ for specific vehicle series, and Augmented or non-Augmented vehicle series. To avoid future difficulties, the format information is being taken out of the subroutine RESET and placed on the Reset Tape by the "add new vehicle" option of RESET. The format of the reset tape is contained in the data package and is input in a manner described in Section III. This format information--henceforth referred to as Data Block 0--does not replace the existing directory of the Reset Tapes, but follows it and precedes all other data blocks for a given vehicle (see Appendix A).

The format for Data Block 0 is a ten (10) word table, with the symbolic table name DIR, where each word of the table contains the number of words for a given data block, i.e., DIR3 would contain the length of data block 3. RESET calculates the number of records per data block in a prescribed manner.

III. FORMAT CHANGES

A. RESET

1. Calling Sequence

Presently the calling sequence for RESET is:

```
      SLJ    4    RESET
+     ZRO         A
      ZRO         V
      ZRO         F
      ZRO         L
```

Where: A = 0 for read designated file(s) + file 1 (Reference Pool file)
= 1 for write designated file(s)
= 2 for write designated file(s) + file 1 (Reference Pool file)
= 3, 4, 5 or 6 for adding new vehicle to tape. In this case A is the number of files to be written.
V = Vehicle Number
F = Data Block
L = First location of buffer area.

The new mod of RESET is designated to retain this calling sequence for read and write options, i.e., A = -1, 0 for read and A = 1, 2 for write.

The "add new vehicle" option which is used only by WNRT and SWNRT is restricted to A=3 and the number of data blocks is determined by the Data Block 0 input from the data package. The F location of the calling sequence has not been used previously for the "add new vehicle" option and is now used for the location of the Data Block 0 in SWNRT.

2. Reset Tape Format

The first record on the Reset Tape is a 50 word Directory record with the following format:

Word	Contents
1	RESET...
2	Update Number
3-25	Vehicle numbers (or zero for all unused locations)
26	zero
27-49	"Number of data blocks"-1 for each vehicle listed in owrds 3 - 25
50	zero

This Directory is the same as is presently used.

NOTE: The "numberof data blocks" does not necessarily mean the actual number, but the number of the last one used. For example, a tape might be constructed with data blocks 1, 2, 3, and 5. Although it would only have 4 data blocks, it would be considered a 5 data block tape.

The Directory record is followed by a 10 word (Data Block 0) record. The words are the fixed point lengths corresponding to Data Blocks 1 through 10. Any Data Block not desired would have 0 for its length. The one exception to this is the first word which corresponds to Data Block 1. Data Block 1 (Reference Pool information) does not change in length or format and its Data Block 0 word is the BCD equivalent of DIR ....This word is placed on the Reset Tape by RESET when adding a new vehicle.

The following 1 to 91 records are the Data Blocks for the first vehicle. This can then be followed by a Data Block 0 for a second vehicle and 1 to 91 records, etc. Each vehicle

has a single record Data Block 1 and up to nine (9) other Data Blocks, each containing up to ten (10) 2000 words records. All records for a given Data Block are limited to a maximum of 2000 words in length. When data block lengths are not exact multiples of 2000, the last record of the block (this could be the only record) is equal to the length of the block modulo 2000.

B. SWNRT

1. Function Card Format (new). See Appendix B for examples.

*SWNRT A B C D

A = Vehicle Number

B = Input Unit:

0 = Card Input

T = Tape input, where T is the tape unit number T. ($2 \leq T \leq 12$)

C = Program Mode:

G = Generate new reset tape

N_i = Update indicated data block ($1 \leq N_i \leq 10$).
This parameter may be repeated for multiple update as desired. No specific order required.

D = Tape of Input (If input from tape):

B = Binary input

S = Symbolic Input

2. Symbolic Table Names

The following list of symbolic table names and their relative starting locations in a data block are incorporated in SWNRT. Additions will be made however, where necessary, up to an overall limit of 100.

DATA BLOCK	TABLE NAME	RELATIVE LOCATION	OCTAL ADDRESS
0	DIR	0	10000
1	R	0	10000

DATA BLOCK	TABLE NAME	RELATIVE LOCATION	OCTAL ADDRESS
	ACQ	0	10000
	SUM	+296	10450
	ADJ	+376	10570
	DAT	+395	10613
	OAJ	+705	11305
	EVT	+880	11560
	PAE	+921	11631
	SRT	+945	11661
2	TM	+995	11743
	TOR	+1253	12345
	MTX	+1337	12471
	DAQ	+1401	12571
	VCT	+300	10454
	VST	+320	10500
	VRT	+370	10560
	STO	+745	11351
3	TIM	0	10000
	SP1	0	10000
	SP2	+1700	13244
	BKI	0	10000
	RTI	+10	10012
	ICP	+20	10024
	DEP	+30	10036
4	DIM	+60	10074
	PTB	+70	10106
	STP	+90	10132
	BND	+140	10214
	ATA	+240	10360
	OUT	+2740	15264

DATA BLOCK	TABLE NAME	RELATIVE LOCATION	OCTAL ADDRESS
5	FIV	0	10000
6	SIX	0	10000
7	SEV	0	10000
8	EGT	0	10000
9	NIN	0	10000
10	TEN	0	10000

C. DATA PACKAGE

Formerly, the minimum requirement for the data package was 3 data blocks, while the maximum was 10 data blocks. With the addition of data block 0, the maximum, of course, becomes 11 data blocks. However, the minimum requirement now becomes 2 data blocks - namely, data block 0 and data block 1. All other data blocks may have a word length of zero.

The format for the data cards remains unchanged. Symbolic or binary cards may still be used. All data blocks are followed by an END card or a binary termination card. If a data block is being excluded (word length zero) the END card or binary termination card need not be present.

The format and length for each of the data blocks is determined by the individual user subject to the following restrictions:

1. Allowable symbolic table names must be used, and
2. No data block may exceed 20,000 words in length.

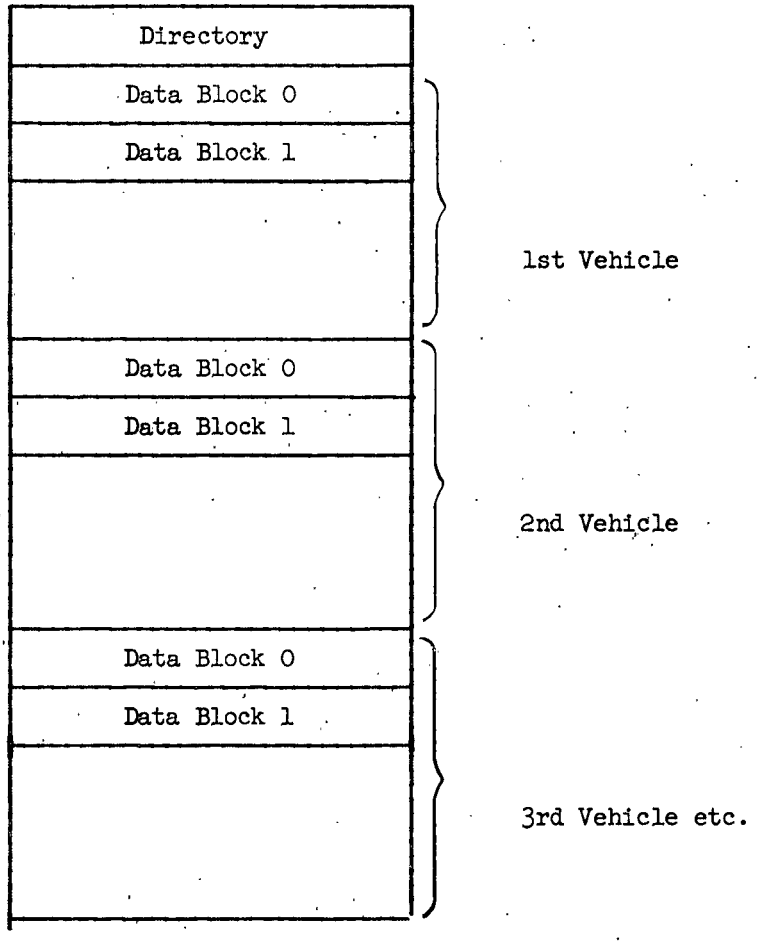
The only exceptions (there are always exceptions to rules) to the above are data blocks 0 and 1. Data block 1 (Reference Pool information) does not change in format or length. Data block 0, containing the format information for data blocks 1 to 10, is 10 words in length, and has the symbolic table name of DIR, as illustrated on the following page.

DATA BLOCK	TABLE NAME	WORD	CONTENT
	DIR	1	length of data block 1
	DIR	2	length of data block 2
0	DIR	3	length of data block 3
	⋮	⋮	⋮ ⋮ ⋮ ⋮ ⋮
	DIR	10	length of data block 10

Input cards for data block 0 should contain fixed point integers, either decimal or octal. If a card is not input, its corresponding data block is assumed to have a word length of zero. (See Appendix C for sample Data Package) Of course, binary input could be used.

APPENDIX A

Reset Tape Format



APPENDIX B

Sample SWNRT Function Cards

Generate New Reset Tape With Input From Tape

```
* SWNRT    VVVV    7    G    B
```

Generate New Reset Tape With Input From Cards

```
* SWNRT    VVVV    0    G
```

Update Reset Tape - Single Data Block

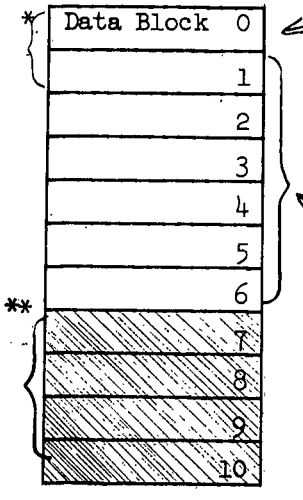
```
* SWNRT    VVVV    0    5
```

Update Reset Tape - Multiple Data Blocks

```
* SWNRT    VVVV    0    1    5    3    4
```

APPENDIX C

Sample Data Package



Data Block 0

Word	Contents
1	113
2	1548
3	3140
4	3700
5	10500
6	4000
7	0
8	0
9	0
10	0

Data Blocks 1 - 6

Word	Contents
N	Any allowable input

* Always present.

** Not used with this data package.

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