MARC 21 Specifications for Record Structure, Character Sets, and Exchange Media

EXCHANGE MEDIA: Part 4

Tape Transfer (Pre-1977)

January 2000

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INTRODUCTION

The specifications described below were valid prior to 1977. The primary difference between the obsolete and current tape specifications is that the pre-1977 specifications did not allow for records to be spanned. These specifications became obsolete when the new specifications were adopted by MARC 21 users at the end of 1977.

STANDARD

- *American National Standard Magnetic Tape Labels for Information Interchange* (ANSI X3.27-1969)

TAPE FORMAT

Tapes were available in two formats: nine channel tapes (odd parity) written at 800 bpi and seven channel tapes (odd parity) written at 556 bpi. Tapes contained internal labels written in ASCII. Each label was an 80-byte record, the byte positions of which were numbered, starting with the leftmost byte position, 0 to 79. Each file of records was terminated by a tape mark (character 13(hex) for nine channel, character 17 (octal) for seven channel).

The total length of a record was given in the first five bytes of each new record. Records were stored in physical units which could contain a minimum of 12 characters up to a maximum of 2048 characters. Each record began at the first of a

physical unit. If a record contained less than 2048 characters, then the size of the physical unit matched the size of the record and also contained less than 2048 characters. If the record contained more than 2048 characters, then the first 2048 characters of the record composed the first physical unit, the next 2048 characters the next physical unit, etc. The last physical unit containing the record could be less than 2048 characters in length. However, if the remainder of the record contained less than 12 characters, the physical unit containing this remainder was padded with blanks out to 12 characters.

TAPE FILE ORGANIZATION

Volume and file organization were as follows:

```
Volume Header Label (VOL1)
File Header Label (HDR1)
  Tape Mark
File of data records
  Tape Mark
End of File Label (EOF1)
  Tape Mark
  Tape Mark
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TAPE LABELS

The structure and contents of the internal tape labels were as follows. Where numeric characters are indicated in Content, if the numeric value is shorter than the length allotted for the element, then the value is right justified and unused positions filled with zeros. Where alphanumeric characters are indicated in Content, if the alphanumeric value is shorter than the length allotted for the element, then the value is left justified and unused positions filled with blanks (ASCII character 20(hex)).

Volume Header Label (VOL1) Nine Channel Tapes:

Element Name	*Bytes*	*Length*	*Content (Description)*
Label Identifier	0-2	3	VOL
Label Number	3	1	1
Volume Serial	4-9	6	(alphanumeric characters)
Accessibility	10	1	(blank)
Unused	11-36	26	(blanks)

Owner Identifier	37-50	14	(alphanumeric characters)
Unused	51-78	28	(blanks)
Label Standard Version	79	1	1

File Header Label (HDR1) Nine Channel Tapes:

Element Name	*Bytes*	*Length*	*Content (Description)*
Label Identifier	0-2	3	HDR
Label Number	3	1	1
File Identifier	4-20	17	(alphanumeric characters)
File Set Identifier	21-26	6	(alphanumeric characters)
File Section Number	27-30	4	0001
File Sequence Number	31-34	4	0001
Unused	35-40	6	(blanks)
Creation Date	41-46	6	(blank and 5 numeric characters*)
Expiration Date	47-52	6	(blanks)
Accessibility	53	1	(blank)
Block Count	54-59	6	000000
System Code	60-72	13	(alphanumeric characters)
Unused	73-79	7	(blanks)

* The date is formatted yyddd, where yy = last 2 digits of the year and ddd = Julian day.

End of File Label (EOF1) Nine Channel Tapes:

Element Name	*Bytes*	*Length*	*Content (Description)*
Label Identifier	0-2	3	EOF
Label Number	3	1	1
Same as File Header Label	4-53	50	(same as File Header Label)
Block Count	54-59	6	(numeric characters)
Same as File Header Label	60-79	20	(same as File Header Label)

TAPE LABELS -- SEVEN CHANNEL TAPES

Seven channel tapes also contained the above labels, but all alphabetic characters were lowercase.

TAPE MARK

The tape mark was a special block consisting of a gap of approximately 3.5 inches of tape followed by a single byte containing the character 13(hex) for nine channel tapes and 17 (octal) for seven channel tapes.
