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TITLE	QUANAT 1
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SOURCE LANGUAGE	LAP6

QUANAT 1

INTRODUCTION

QUANAT 1 is a general purpose conversational display subroutine. The subroutine features single character deletion and independently located text storage. The character display list is identical with the LAP6 display codes except for removal of CASE F 75 and CASE G 76_8 from the display list. QUANAT 1 occupies 376 octal memory locations.

General Usage

The subroutine will display any alphanumeric text that can be entered using the LAP 6 text capability. Exceptions concerning CASE F and CASE G are noted above. Displayed text will be automatically centered vertically. A line of text starts at horizontal location 100_8. Up to eight lines of text containing up to 17 characters per line may be displayed at one time.

Question marks are used to indicate locations that should be filled by a keyboard entry from the operator. Every completed keyboard entry must be terminated by an End of Line. Striking End of Line will cause blanks to be placed in the unused storage of a question mark area. An End of Line after all question marks have been filled will terminate the display. An End of Line is required to terminate the display even when no question marks have been displayed.

Deletion of entered characters is done by the DELETE key. Each use of the delete key will remove the last entered character unless the last entered character was an End of Line. If the last entered character was an End of Line then all filled question marks will be

cleared. If the last entered character is the only character, two DELETES will be required to restore the question mark display. The first DELETE removes the character, the second DELETE inserts the question mark.

Programming Requirements

1. QUANAT 1 may be located anywhere in memory since all internal JMP's are of the form JMPp+. No tags are utilized.

2. QUANAT 1 use index registers 15, 16, 17.

3. The text to be displayed may be stored anywhere in memory. The text storage location is referenced in the subroutine entry statement.

4. The subroutine entry statement must have the following form

Location	Statement
P	JMP QUANAT 1
P+1	9A-4000
P+2	

The JMP QUANAT 1 statement is the jump to the first statement of QUANAT 1. The statement 9A-4000 in location P+1 is the text storage location reference. In this example text storage starts in location 9A. The reference address statement is preset one-half word so that h-indexing can be used uniformly in QUANAT 1. Return from QUANAT 1 will be to location p+2.

Text Formatting

All text to be displayed must have a 77_8 as the final character.

77_8 is used as the end-of-text flag. Storage locations for keyboard entries are defined by leading and trailing 76's (CASE G). Sections bounded by 76's will be displayed as a single question mark. Display of a single question mark is accomplished by having QUANAT 1 enter a question mark (60_8) immediately after the first 76 and then filling the spaces to the next 76 with 75_8 (75_8 is a non-displayable character).

The question mark is the first character filled. Once the question mark has been filled there is no visible evidence of the number of additional entries that will be accepted. One must proceed on a trail and error basis or have knowledge of the maximum number of allowable entries. For those whose sense of well-being is disturbed by this problem the situation can be rectified by replacing the 75's in the ENTER QUESTION MARK and DELETE subroutines with 60_8's. For those who can't make up their mind, it is suggested that the '75' be replaced by a tag and the tag be defined '75' or '60' as the fancy strikes you.

Example

```
JMP QUANAT 1          #9A "This is an example of how the
  9A-4000                   text capability of LAP 6 can be
                            utilized.  Do you understand:?:"
                            77
```

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