

September 17, 1959

MEMORANDUM TO: 1401 File

SUBJECT: Unconditional Transfer

The released 1401 Machine will contain the ability to execute an unconditional branch instruction when either a Word Mark or a blank character is located after the fourth character of an instruction. The following forms of the instructions can utilize this feature thus saving instruction time.

1 (AAA)	Read and Branch
2 (AAA)	Print and Branch
3 (AAA)	Print-Read and Branch
4 (AAA)	Punch and Branch
5 (AAA)	Read-Punch and Branch
6 (AAA)	Print-Punch and Branch
7 (AAA)	Print-Read Punch and Branch
8 (AAA)	Read Release and Branch
9 (AAA)	Punch Release and Branch
B (AAA)	Branch
. (AAA)	Stop and Branch

The unconditional branch instructions that contain modifiers will still require the Word Mark following the fifth character of the instruction in order to transfer.

F (AAA) d	Forms Control and Branch
K (AAA) d	Stacker Select and Branch
2 (AAA) H	Print Word Marks and Branch

The clear and branch instruction will give an unconditional branch after clearing, if a Word Mark or a blank is located after the seventh character of the instruction as follows:

~~(AAA)(BBB)~~ ^H Clear and Branch

low docc with transfer

/(AAA) or /(AAA)(BBB)

This change will allow the unconditional branch instructions to be executed correctly without requiring a Word Mark to be located at the end of the instruction. This may save the programmer from programming a number of additional set Word Mark instructions in his program.

It should also be pointed out that no correct instruction contains a blank in the fifth character position of an instruction unless it is one of the above mentioned unconditional branch instructions. If a blank is accidentally put into this position in any other instruction (with the exception of No Operation) it will also act as an unconditional branch and the next instruction will be taken from the (AAA) address.

W S Schaffer
W. S. Schaffer
Staff Engineer
Department 280

WSS:bd

- cc: Messrs. G. E. Beers
- K. A. Bell
- A. A. Bissell
- G. E. Bontecou
- N. C. Capettini
- J. S. Conzola
- P. M. Demer
- R. F. Ellsworth
- P. Farbanish ←
- J. G. Fitzgerald
- J. A. Harvilchuck
- R. Hiller
- J. J. Ingram
- P. E. Johnson
- D. S. MacLeod
- T. M. McAdon
- T. Markulin
- A. D. Miller
- H. W. Morrow
- W. R. Murray
- R. W. Phillips
- F. M. Quigley
- R. A. Rowley
- K. B. Stoffel
- J. M. Swanson
- F. O. Underwood