

1. A letter of recent date from Stanford Research Institute described their "discovery" of four "new" operations in their DATATRON 205: FLOATING ADD ABSOLUTE, FLOATING SUBTRACT ABSOLUTE, FLOATING MULTIPLY ABSOLUTE, and FLOATING DIVIDE ABSOLUTE. This note is to remind you that these four operations are standard features of every DATATRON 205 Central Computer manufactured since January, 1957. (The first unit off the production line with these four operations included as standard bears serial number 160.) FCN 159, dated March 7, 1957, authorizes modification in the field of DATATRON 205 (with floating Point Control Unit) not having these features.

It is important to remember that the changes in logic were made to permit only FLOATING ADD ABSOLUTE and FLOATING SUBTRACT ABSOLUTE to be performed. FLOATING MULTIPLY ABSOLUTE and FLOATING DIVIDE ABSOLUTE are guaranteed results of by-product logic.

The format of each of the instructions, together with a description of the operation performed, follows:

Operation name: FLOATING ADD ABSOLUTE

Abbreviation: FAA

Operation code: 90

Instruction format: \pm 000p 90 aaaa

Description: Add -- in floating-point style -- the absolute value of the contents of B[aaaa] to the contents of the A register. The sum appears in the A register.

Operation name: FLOATING SUBTRACT ABSOLUTE

Abbreviation: FSA

Operation code: 91

Instruction format: \pm 000p 91 aaaa

Description: From the contents of the A register subtract -- in floating-point style -- the absolute value of the contents of B[aaaa]. The difference appears in the A register.

Operation name: FLOATING MULTIPLY ABSOLUTE

Abbreviation: FMA

Operation code: 92

Instruction format: \pm 000p 92 aaaa

Description: Multiply -- in floating-point style -- the absolute value of the contents of B[aaaa] by the contents of the A register. The high-order digits of the product appear in the A register, the low-order digits in the R register.

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Operation name: FLOATING DIVIDE ABSOLUTE

Abbreviation: FDA

Operation code: 93

Instruction format: \pm 000p 93 aaaa

Description: Divide -- in floating-point style -- the contents of the A and R registers by the absolute value of the contents of B[aaaa]. The quotient appears in the A register; one or possibly two of the low-order digits of the quotient will be in the high-order digit positions in the R register. The remainder occupies the remaining low-order digit positions in the R register.

Please refer to Bulletin 3028, HANDBOOK, FLOATING POINT CONTROL UNIT, for a more comprehensive description of floating-point operations: except that the absolute value of the operand is taken during the execution of the instructions described in this note, their execution is identical with that of the corresponding operations described in Bulletin 3028.

An effort will be made to incorporate this information in our literature at the earliest possible time. We plan to publish a non-confidential Technical Bulletin describing these operations.

2. Inquiries have been received concerning the possibility of using an IBM 519 in place of the 523 as output from the Cardatron (either 205 or 220). This is to state that the substitution cannot be made:
 - a. There is no modification kit for the 519; and
 - b. The 519 was not designed for the kind of intermittent operation experienced by the 523; in particular, when the 519 is used intermittently accurate registration of the cards in the punching station cannot be guaranteed.
3. This note is concerned with the Cardatron for both the 205 and the 220. It has to do with the form of the input data deck when using the 089.
 - a. When the CLEAR button on the Input Control Unit is depressed the FS (Format Select) toggles are set to 7: REJECT FORMAT.
 - b. Because REJECT FORMAT was designated by Step a, when the START button on the 089 is depressed the first card in the hopper will always be rejected into the pocket of the 089 no matter how the card is punched. Hence, the data deck must be preceded

by (at least) one header card. The first header card may be blank; additional header cards must select REJECT FORMAT if their contents are to be ignored, that is, not transferred to the buffer. Only one header card is required.

- c. In any case, depression of the START button on the 089 should not result in any data cards being ejected into the pocket of the 089. Only the header card or cards will be in the pocket. However, the contents of the first data card will have been transferred to the buffer.
 - d. At least two follower cards -- blank or selecting REJECT FORMAT -- are required to push the last data card past the second reading station in the 089. Follower cards which select REJECT FORMAT are to be preferred because of the ease with which they may be ejected into the pocket.
4. This note is to clarify item 2 in Technical Newsletter Number 5:
- a. The patch panel connections used on the Typewriter Control Unit were: Computer to Format; Format to Flex.
 - b. The part of the specifications for the Flexowriter which refer to the actions to be caused by assigned DATATRON codes impose no restriction on the actions caused by unassigned codes. For this reason, the manufacturer of the Flexowriter is at liberty to change the Flexowriter in any way he pleases, so long as the modified device still meets ElectroData specifications. Thus, it may happen that not every Flexowriter will duplicate the action of the unassigned codes shown in the table. To be on the safe side, every installation should prepare its own table.

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