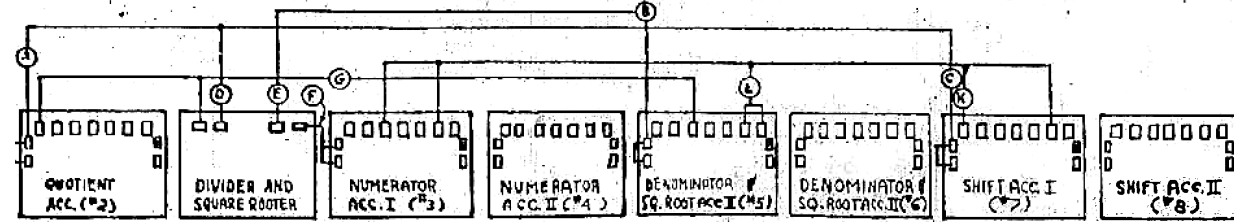


Diagram Showing Semi-permanent Connections to be Made Between Divider-Square-Rooter and its Associated Accumulators



(In dividing the quotient is built up here. This acc. is not used in square-rooting.)

(The numerator or quantity to be square-rooted is to be placed here.)

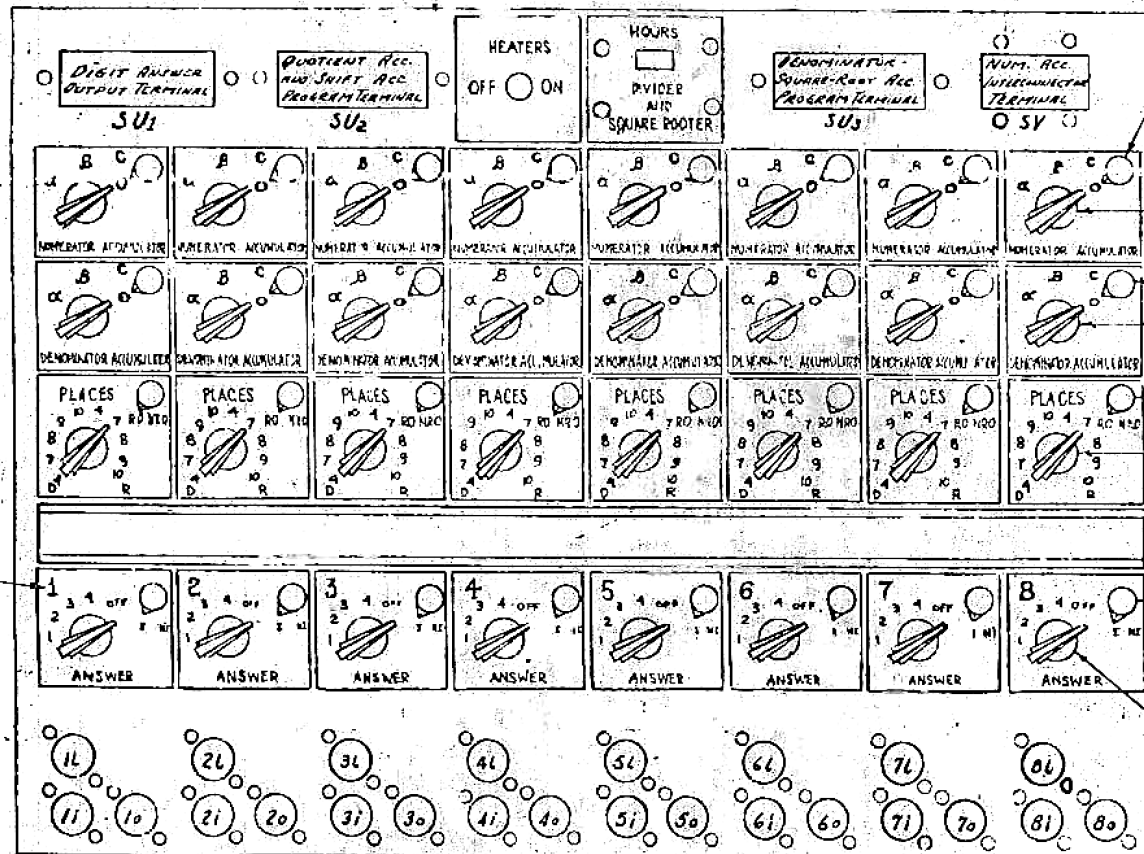
(In dividing, the denominator is to be placed here, in square-rooting, also the square root is built up here.)

Notes on cables:

No digit key load box is to be used on any of these connections

- (A) Accumulator interconnector cable (quotient) (PX-5-131)
- (B) Acc. interconnector cable (denominator) (PX-5-130)
- (C) Acc. interconnector cable (shift) (PX-5-129)
- (D) Standard digit cable, with adapters (divider) (PX-4-114) plugged into program terminal.
- (E) Standard digit cable, with adapters (divider) (PX-4-114) plugged into program terminal.
- (F) Acc. interconnector cable (divider) (PX-5-127)
- (G) Trunk to transmit digit pulses for quotient and square root. This trunk is not to be used for any other purpose, since the pulses emitted are not supplied from transmitters but from inverter tubes which cannot be connected in parallel with anything else. These inverters have their own load resistors, so no load box is to be used in connection with them.
- (K) Standard digit trunk (with load box) using +1 shifter as input of the shift accumulator.
- (L) Standard digit trunk transfer (with load box).

There are eight divider square rooter program controls, each consisting of a program pulse input terminal (which, when stimulated with a program pulse, causes program control to program an operation, in accordance with its switch settings), a program pulse output terminal (which emits a program pulse on completion of the operation, including interlock) and the digit switches described below, and an associated transmitter (for lamp bulbs see PX-10-302).



No program which the pulse terminal given column

- Numerator accumulator clear switch**
This governs the clearing of the remainder by means of the static cable running into the numerator accumulator PM plug-in unit. If this switch is set on C, the numerator accumulator is cleared of its remainder during the last addition time of the division or square root.
- Numerator accumulator receive switch**
When semi-permanent connections are made, this switch programs the numerator accumulator to receive on the α and β digit input terminals during the first addition time of the dividing or square-rooting.
- Denominator-square-root accumulator clear switch**
This switch operates the same as the numerator accumulator clear switch except that it governs the clearing of the denominator-square-root accumulator.
- Denominator-square-root accumulator receive switch**
When semi-permanent connections are made, this switch programs the denominator and square root accumulator to receive on the α and β digit input terminals during the first addition time of the dividing or square-rooting.
- Round-off switch**
When set to A this switch causes the answer to be rounded off in the last place.
Note: Even when the number (s) operated on are such as to give an exact answer this switch must be set to R to give the correct answer.
- Wide-square-root and Places switch**
This switch selects which process is carried out and the number of places (counting from the 10th decade, i.e. the highest place) of the answer.
Note: The digit answer output terminal is so wired that the answer is built up starting in the 9th decade (counting from the right). For ordinary operation the numerator (or number to be rooted) and denominator should be placed so that there is a 0 in the 10th decade of their accumulators. If the number to be rooted has an odd (even) number of places to the left of the decimal point it should be placed so that the left-hand digit is in an odd (even) numbered decade. Hence the answer will have at least one place less than the setting of the places switch.
- Interlock switch**
This switch is used whenever another operation or set of operations is carried on simultaneously with the division or square-rooting.
In average division (in which there is a zero in the 10th decade of the answer accumulator) or square-rooting, takes 13p addition times, where p is the setting of the places switch.
If interlock is used, and the interlock pulse arrives after the operation has been completed, a program output pulse is emitted during the second addition time following.
- Answer Diagonal switch**
This switch may be used to program transmission of the quotient or twice the square-root during the first addition time following the completion of the operation. The program control output pulse will then be used to stimulate last unit of the ENIAC which is to receive the answer.
Positions 1 and 2 are normally used to govern the quotient accumulator. The operation they perform is defined by adapter (divider) (PX-4-114). Thus if PX-4-114 is used
Disposal 1 - Causes quotient acc. to add transmit.
Disposal 2 - Causes quotient acc. to add transmit and clear.
Similarly, positions 3 and 4 are normally used to govern the denominator-square-root accumulator.

Terminals 11, 21, ..., 81 - Program pulse input terminals for program controls 1-8 respectively. When stimulated with program pulse causes program control to program division or square-root in accordance with its switch settings.

Terminals 11, 21, ..., 81 - Interlock pulse input terminal. If the interlock switch of a given program control is set at 11, these terminals are not used. If the interlock switch is set at 1, a pulse must have been received on any interlock terminal since the last non-interlock operation or initial clearing of the divider before a program output pulse is emitted. The interlock pulse may be a program pulse or a digit pulse or pulses.

Terminals 10, 20, ..., 80 - Program pulse output terminals for program controls 1-8 respectively. Emit program pulse after both the operation is completed and an interlock pulse is received (if interlock switch is set at 1).

MOORE SCHOOL OF ELECTRICAL ENGINEERING		
UNIVERSITY OF PENNSYLVANIA		
DIVIDER AND SQUARE ROOTER FRONT PANEL		
MATERIAL	FINISH	SCALE
Drawn by J. EDELSACK	Checked by RWS 10/15/45	Approved by:
DEC. 1914		PX-10-301