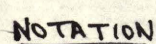


ROUTINE (CROUT METHOD)
(BLOCK DIAGRAM)



n = rank of equation matrix

a_n = address of 1st element of equation matrix

$A_{ij} = \dots$ "derived" matrix

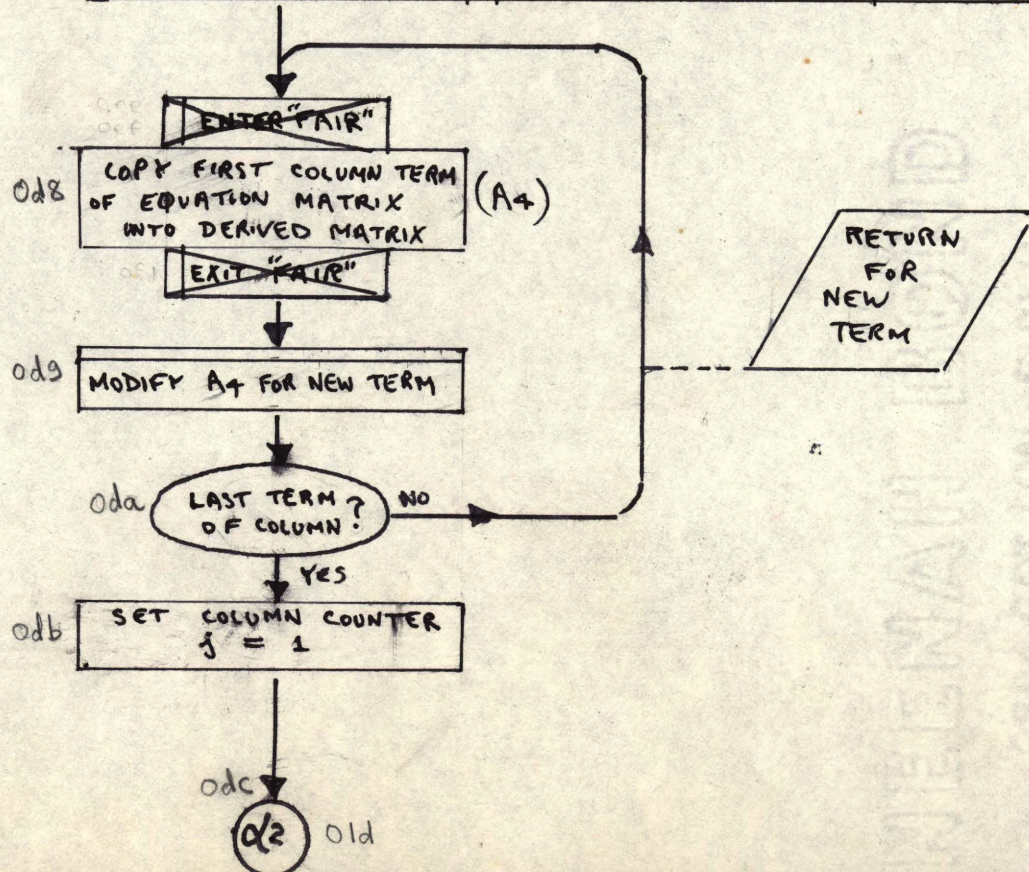
x_1 = address for 1st solution.

MEMORY LOCATIONS 072-odc (ie this page)

CAN BE OVERWRITTEN BY DERIVED MATRIX.

IN THIS CASE $A_{11} = 0.77$

086-0a4

0a5-0d7

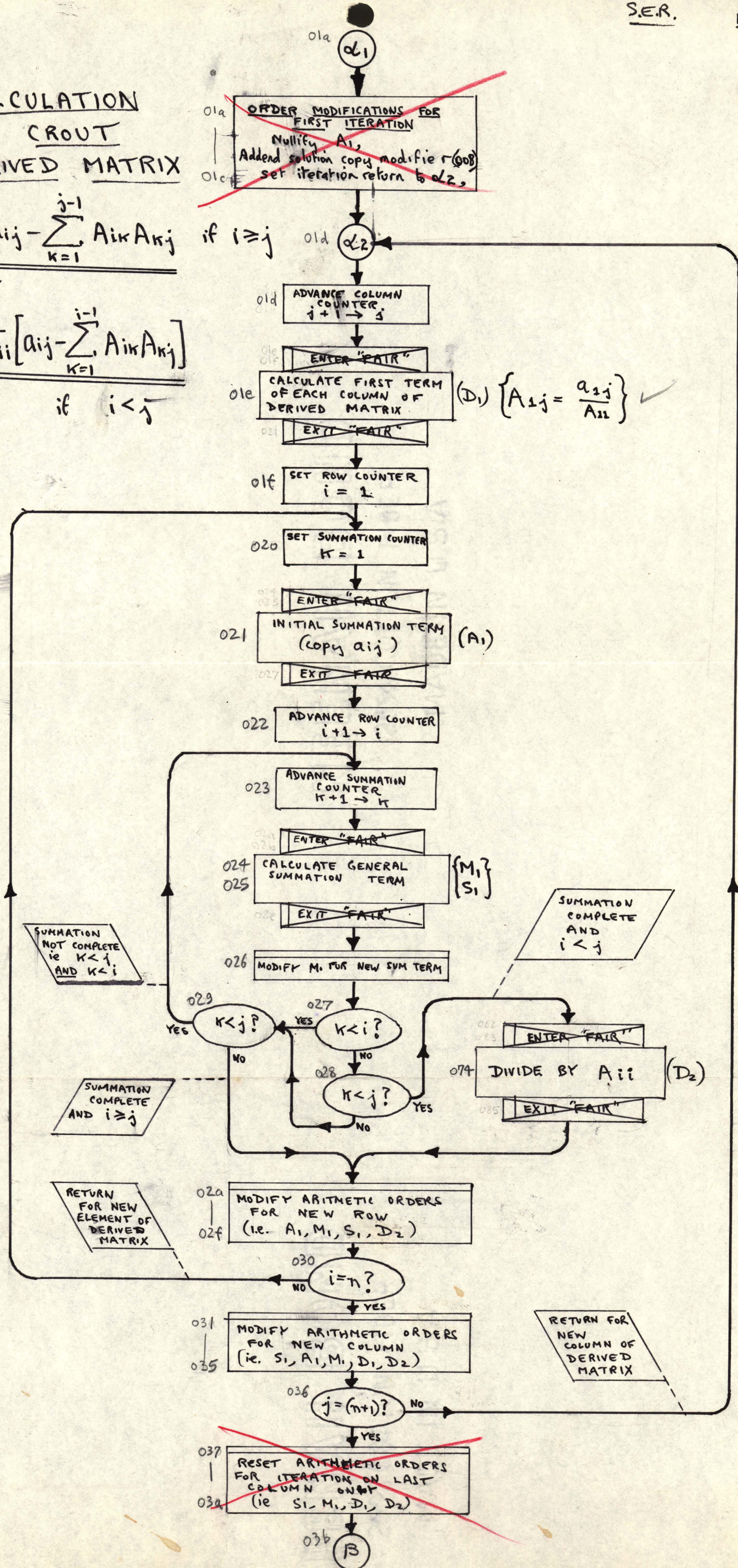
CALCULATION OF CROUT DERIVED MATRIX

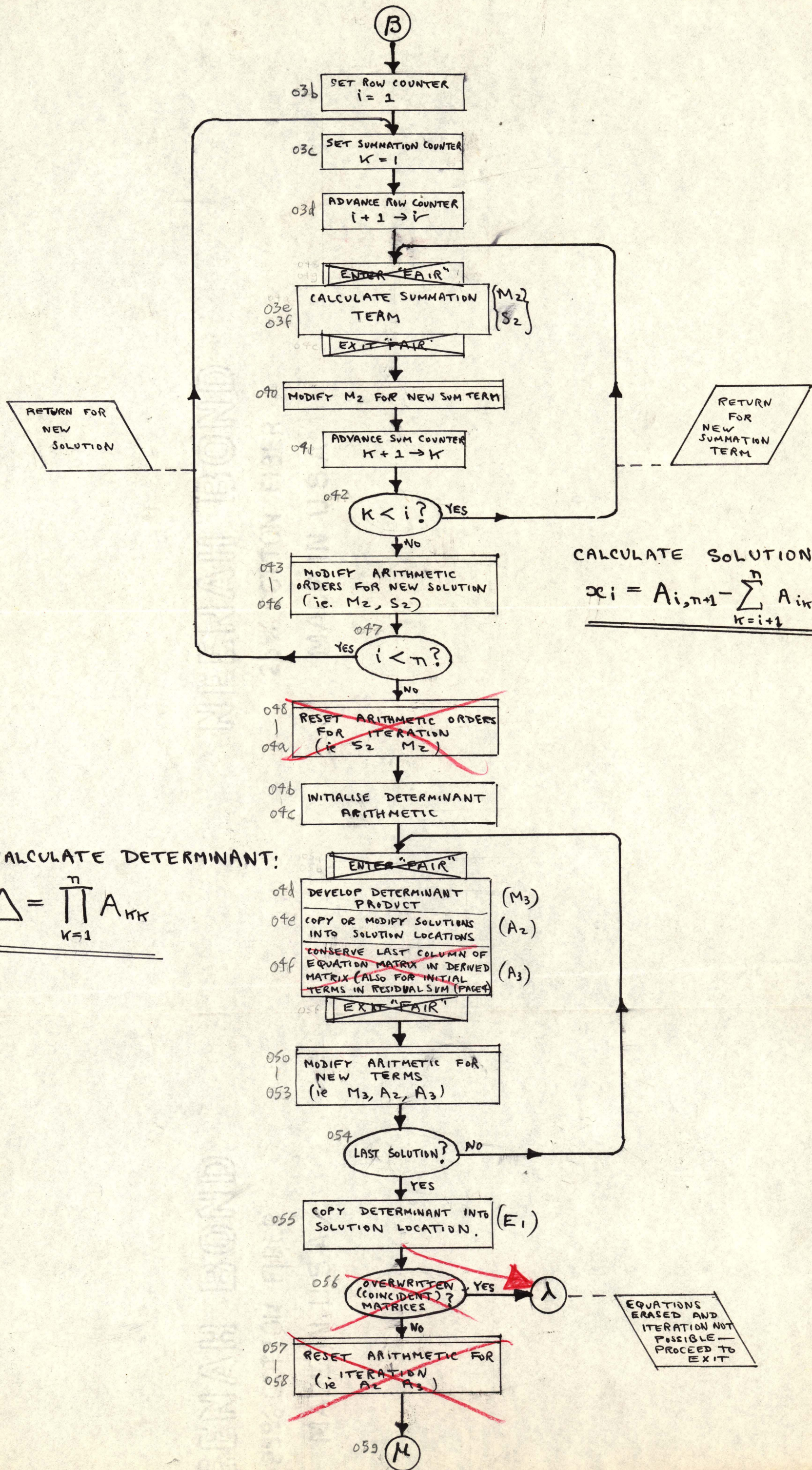
$$A_{ij} = a_{ij} - \sum_{k=1}^{j-1} A_{ik} A_{kj} \quad \text{if } i \geq j$$

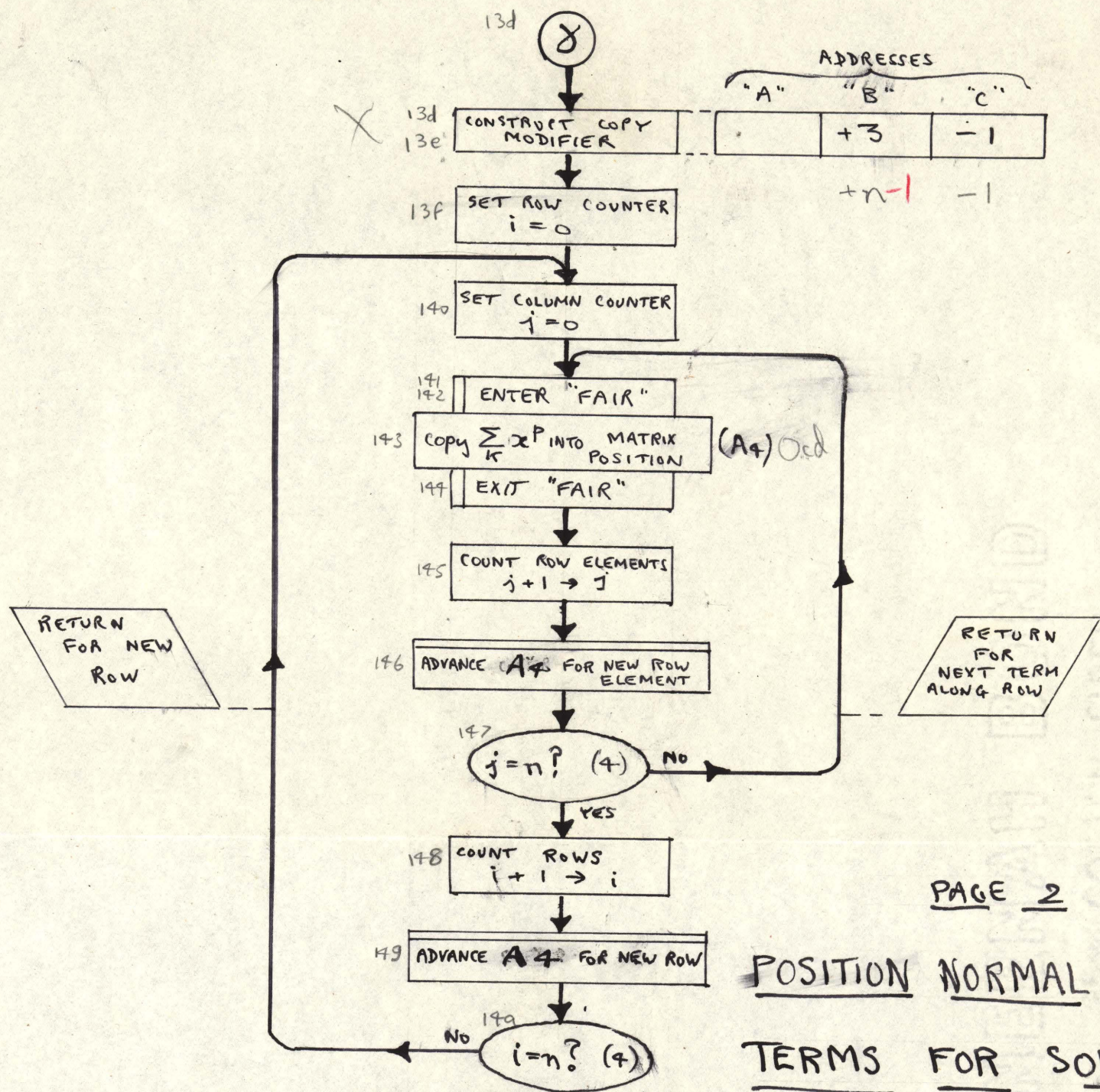
$$\underline{\text{or}}$$

$$A_{ij} = \frac{1}{A_{ii}} \left[a_{ij} - \sum_{k=1}^{i-1} A_{ik} A_{kj} \right]$$

if $i < j$







PAGE 2

POSITION NORMAL MATRIX TERMS FOR SOLUTION

14e	14f	1a0	1a1	1a2
m	$+\sum x$	$+\sum x^2$	$+\sum x^3$	$=\sum y$
1a3	1a4	1a5	1a6	1a7
$\sum x$	$+\sum x^2$	$+\sum x^3$	$+\sum x^4$	$=\sum xy$
1a8	1a9	1a2	1a6	1a7
$\sum x^2$	$+\sum x^3$	$+\sum x^4$	$+\sum x^5$	$=\sum x^2 y$
1a4	1a5	1a6	1a7	1a8
$\sum x^3$	$+\sum x^4$	$+\sum x^5$	$+\sum x^6$	$=\sum x^3 y$

$$\begin{array}{r} 17b \\ 084 \\ 047 \end{array}$$

$$\begin{array}{r} 17b \\ 082 \\ 998 \end{array}$$

$$\begin{array}{r} 144 \\ 153 \end{array}$$

$$\begin{array}{r} 11x12 \\ 12x13 = 132 \end{array}$$

$$\begin{array}{r} 320 \\ 16 \end{array}$$

$$\begin{array}{r} 082 \\ 16 \end{array}$$

108

84 144 148

OPTIONAL EXIT
FOR USE WHEN
AP'S ARE
TO BE USED
FOR FURTHER
CALCULATION

LEAST SQUARE CUBIC APPROXIMATION

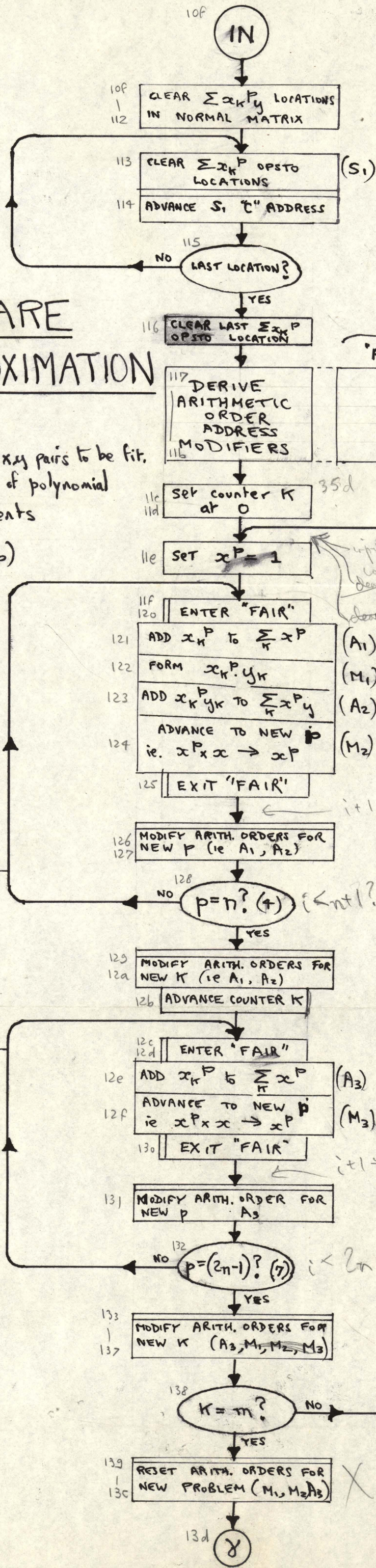
$$\sum_{p=0}^3 a_p x^p$$

NOTATION: m = no. of xy pairs to be fit.
 p = degree of polynomial
 n = no. of coefficients
 $= (a_0 + \dots + a_p)$
 $= p+1$

IN THIS CASE, FOR CUBIC:

$$p=3 \quad n=4$$

HOWEVER, PROGRAM
METHOD IS CAPABLE
OF SIMPLE EXTENSION
TO COMPUTE POLYNOMIAL
OF GENERAL DEGREE
(see choice blocks)



ADDRESSES

A	B	C
1	1	1
n (4)	n (4)	n (4)
2	2	2
n+1 (5)	n+1 (5)	n+1 (5)
4(n+1) (20)	4(n+1) (20)	4(n+1) (20)

PAGE 1 :-
CALCULATION
OF NORMAL
SUMMATIONS

$$m = \sum_{k=1}^m 1$$

$$\sum_{k=1}^m x$$

$$\sum_{k=1}^m x^2$$

$$\vdots$$

$$\sum_{k=1}^m x^{n-1}$$

$$\sum_{k=1}^m x^{2(n-1)}$$

$$\sum_{k=1}^m y$$

$$\sum_{k=1}^m xy$$

$$\sum_{k=1}^m x^2 y$$

$$\vdots$$

$$\sum_{k=1}^m x^{n-1} y$$

initialise S1, S2, A1, A2, A3, A4, A5, A6, A7, A8, A9, A10, A11, A12, A13, A14, A15, A16, A17, A18, A19, A20, A21, A22, A23, A24, A25, A26, A27, A28, A29, A30, A31, A32, A33, A34, A35, A36, A37, A38, A39, A40, A41, A42, A43, A44, A45, A46, A47, A48, A49, A50, A51, A52, A53, A54, A55, A56, A57, A58, A59, A60, A61, A62, A63, A64, A65, A66, A67, A68, A69, A70, A71, A72, A73, A74, A75, A76, A77, A78, A79, A80, A81, A82, A83, A84, A85, A86, A87, A88, A89, A90, A91, A92, A93, A94, A95, A96, A97, A98, A99, A100, A101, A102, A103, A104, A105, A106, A107, A108, A109, A110, A111, A112, A113, A114, A115, A116, A117, A118, A119, A120, A121, A122, A123, A124, A125, A126, A127, A128, A129, A130, A131, A132, A133, A134, A135, A136, A137, A138, A139, A140, A141, A142, A143, A144, A145, A146, A147, A148, A149, A150, A151, A152, A153, A154, A155, A156, A157, A158, A159, A160, A161, A162, A163, A164, A165, A166, A167, A168, A169, A170, A171, A172, A173, A174, A175, A176, A177, A178, A179, A180, A181, 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