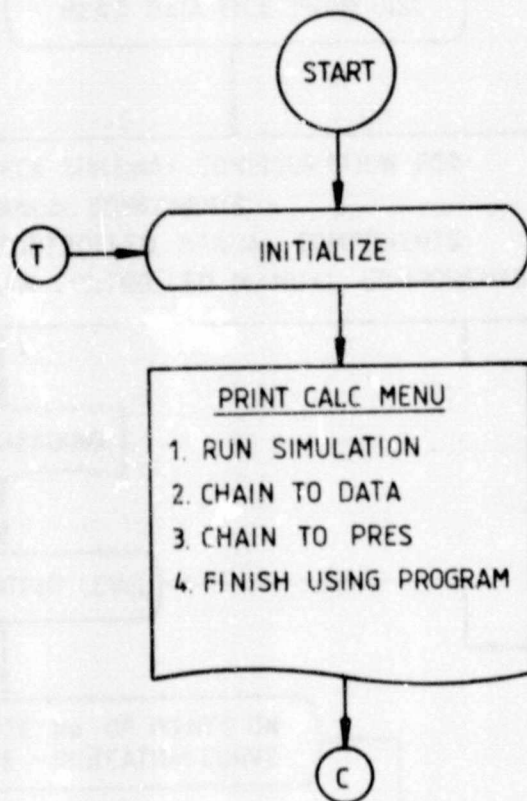
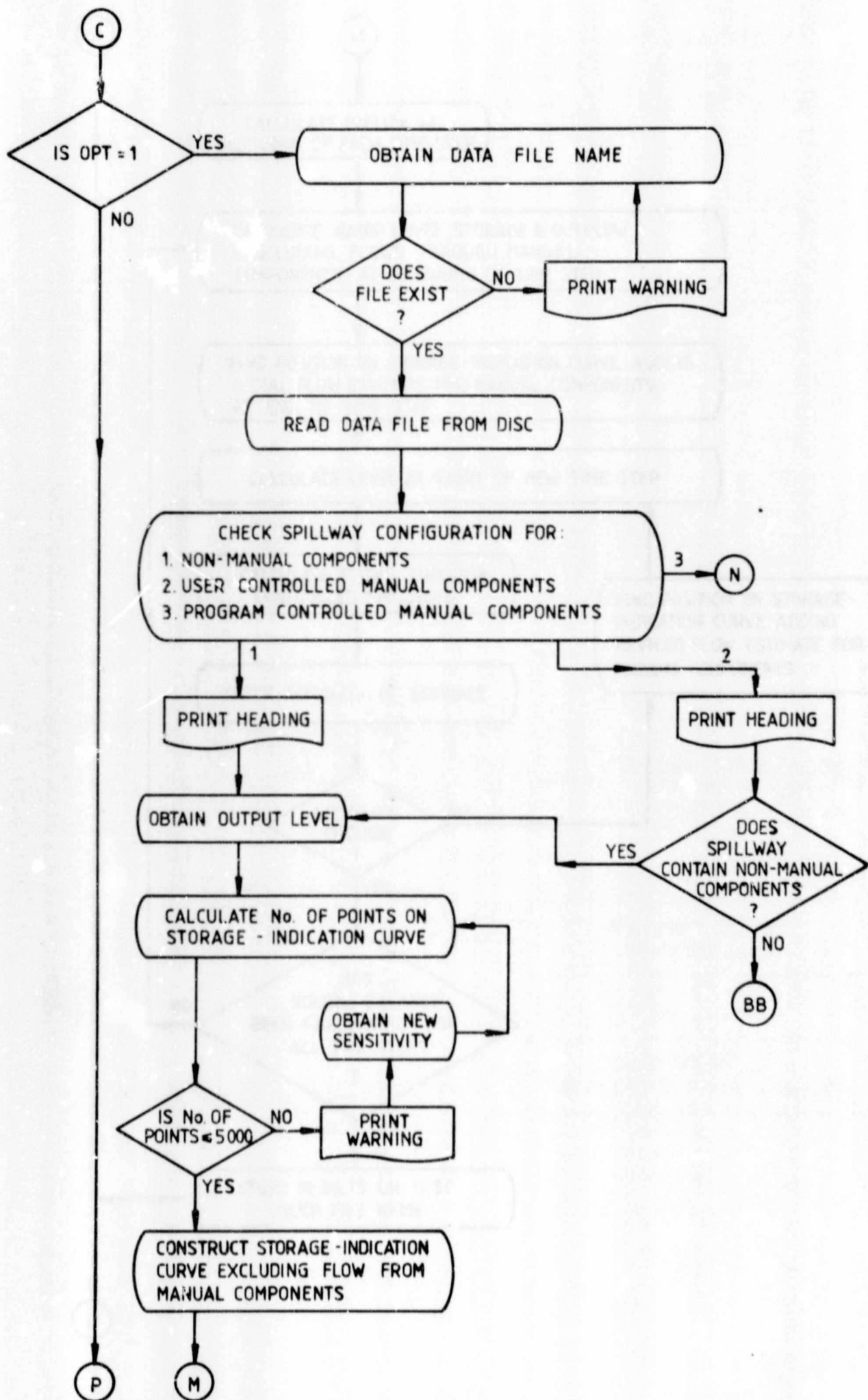
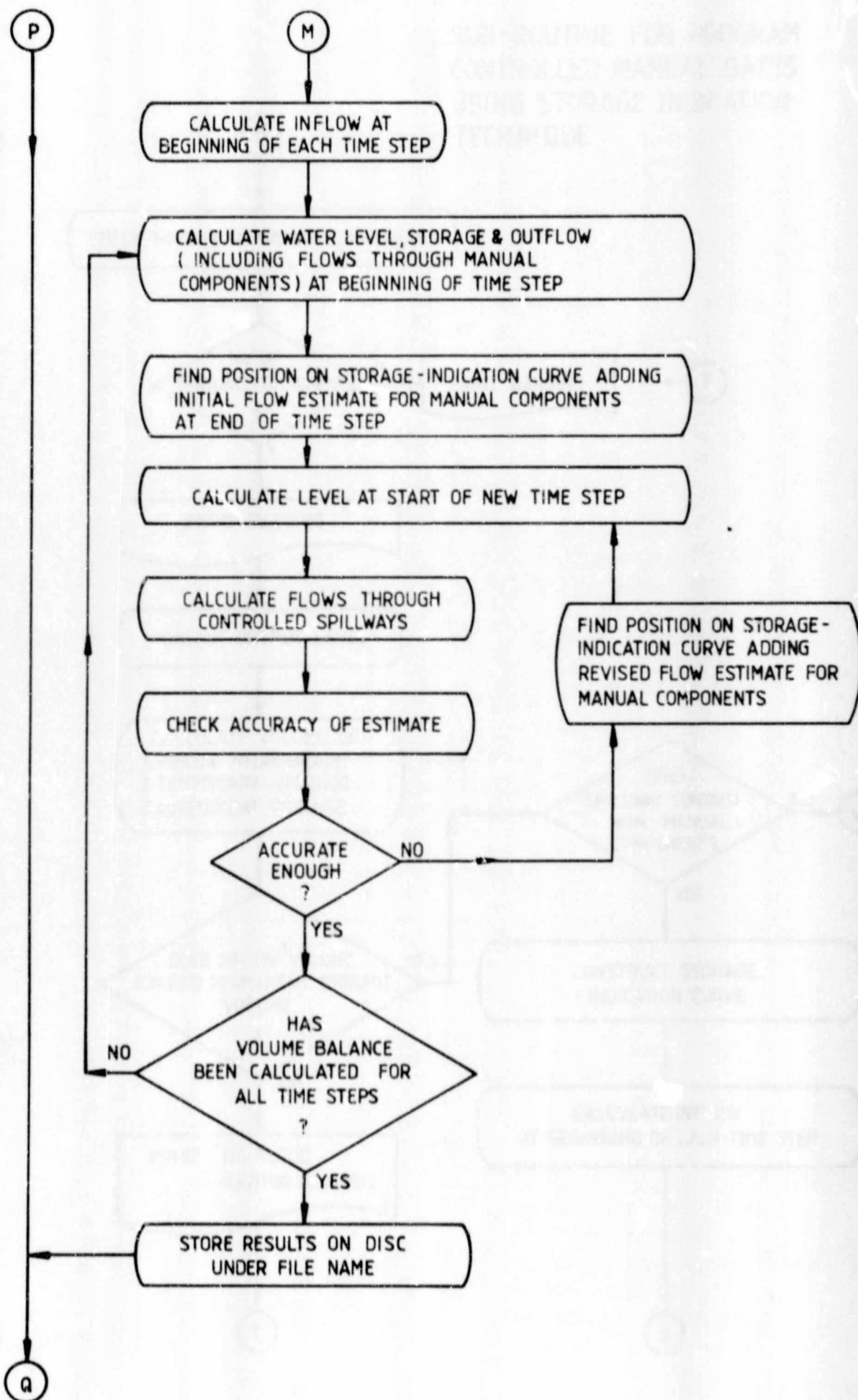


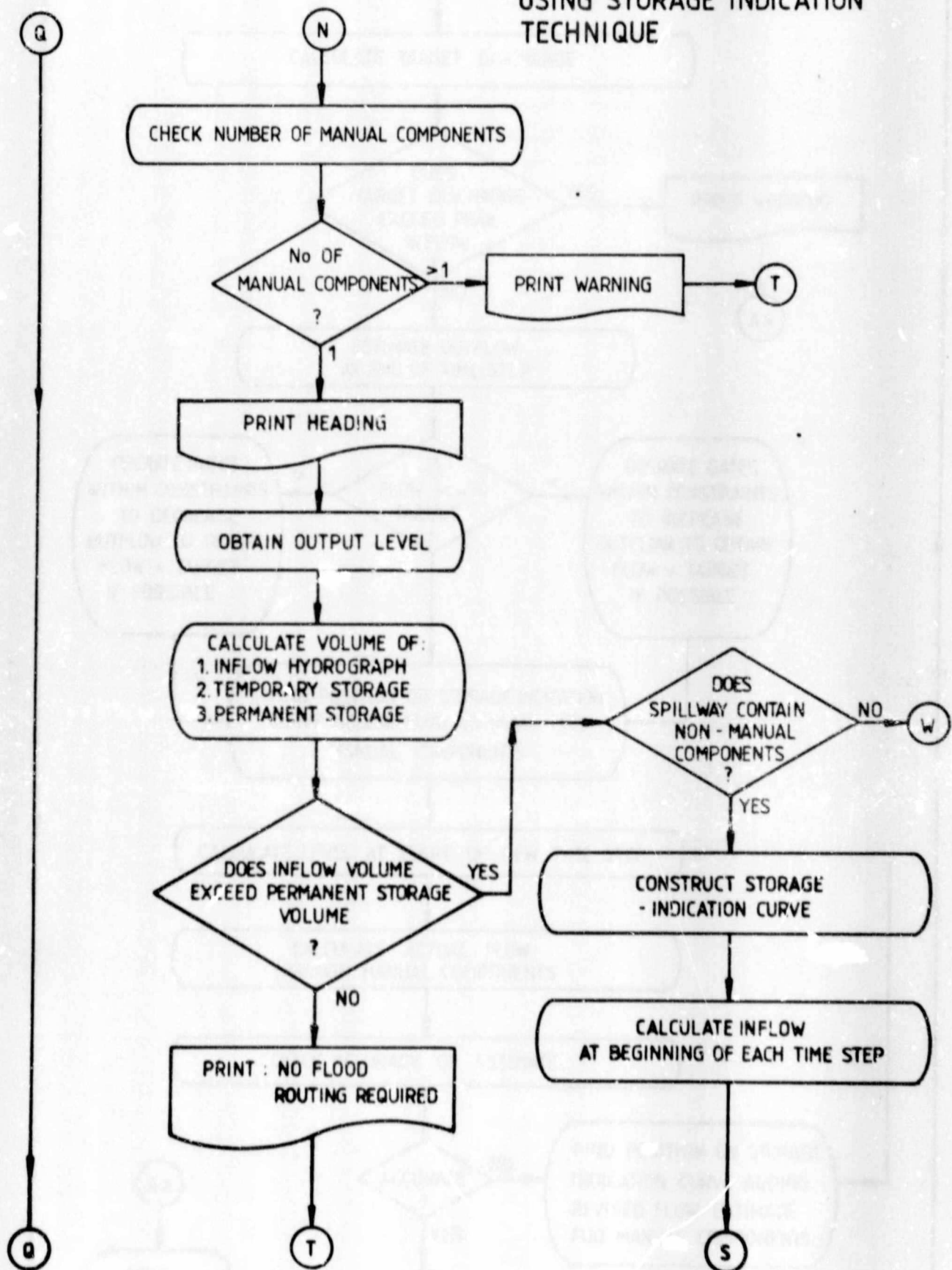
FLOW CHART FOR CALC PROGRAM BLOCK

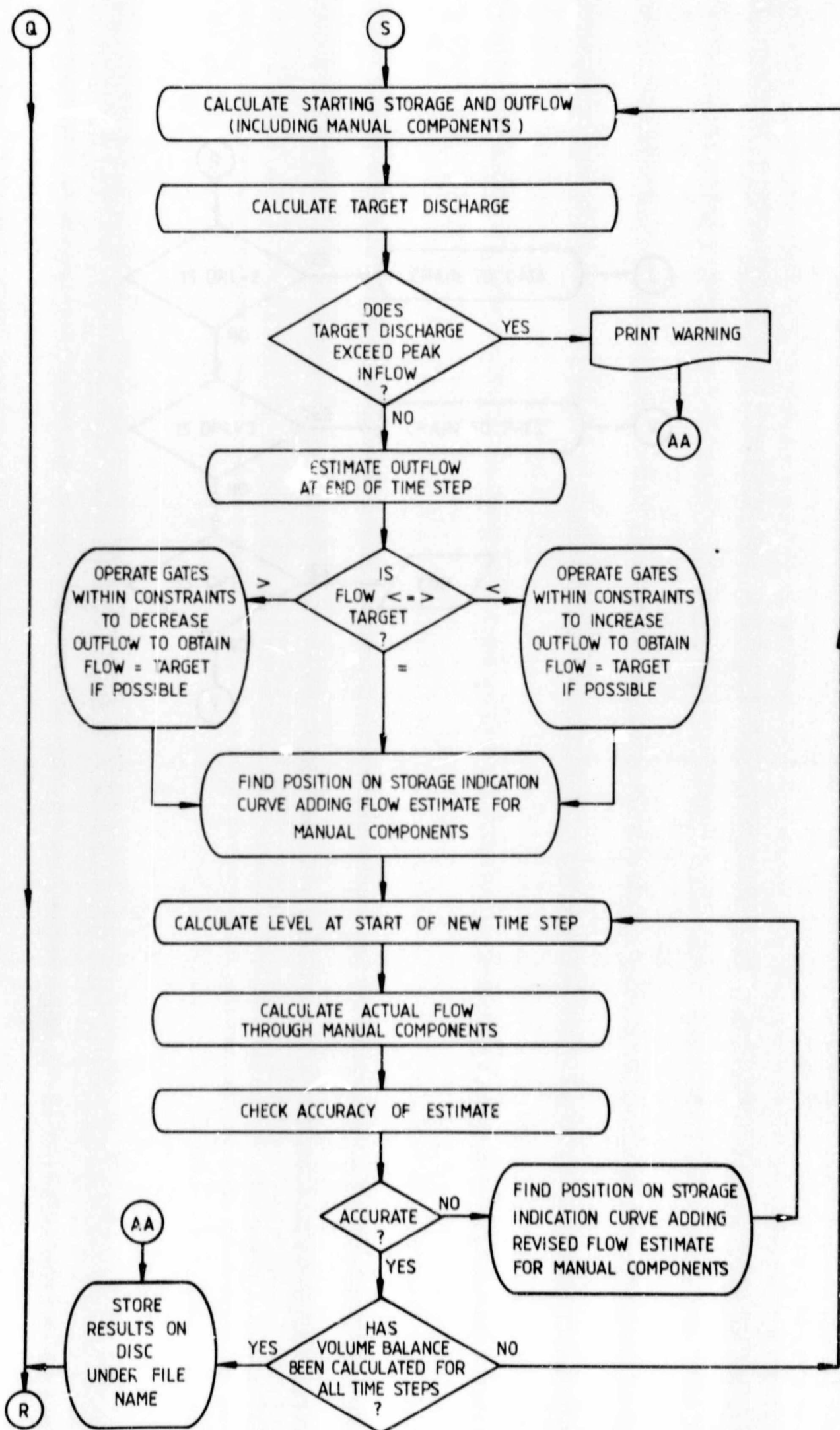


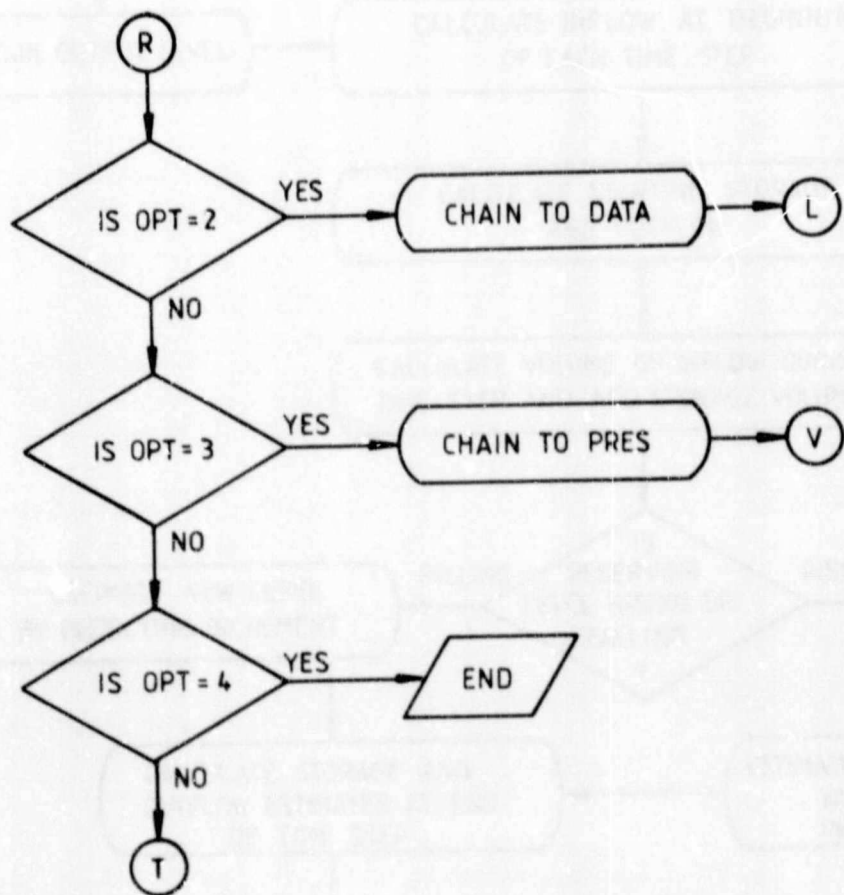




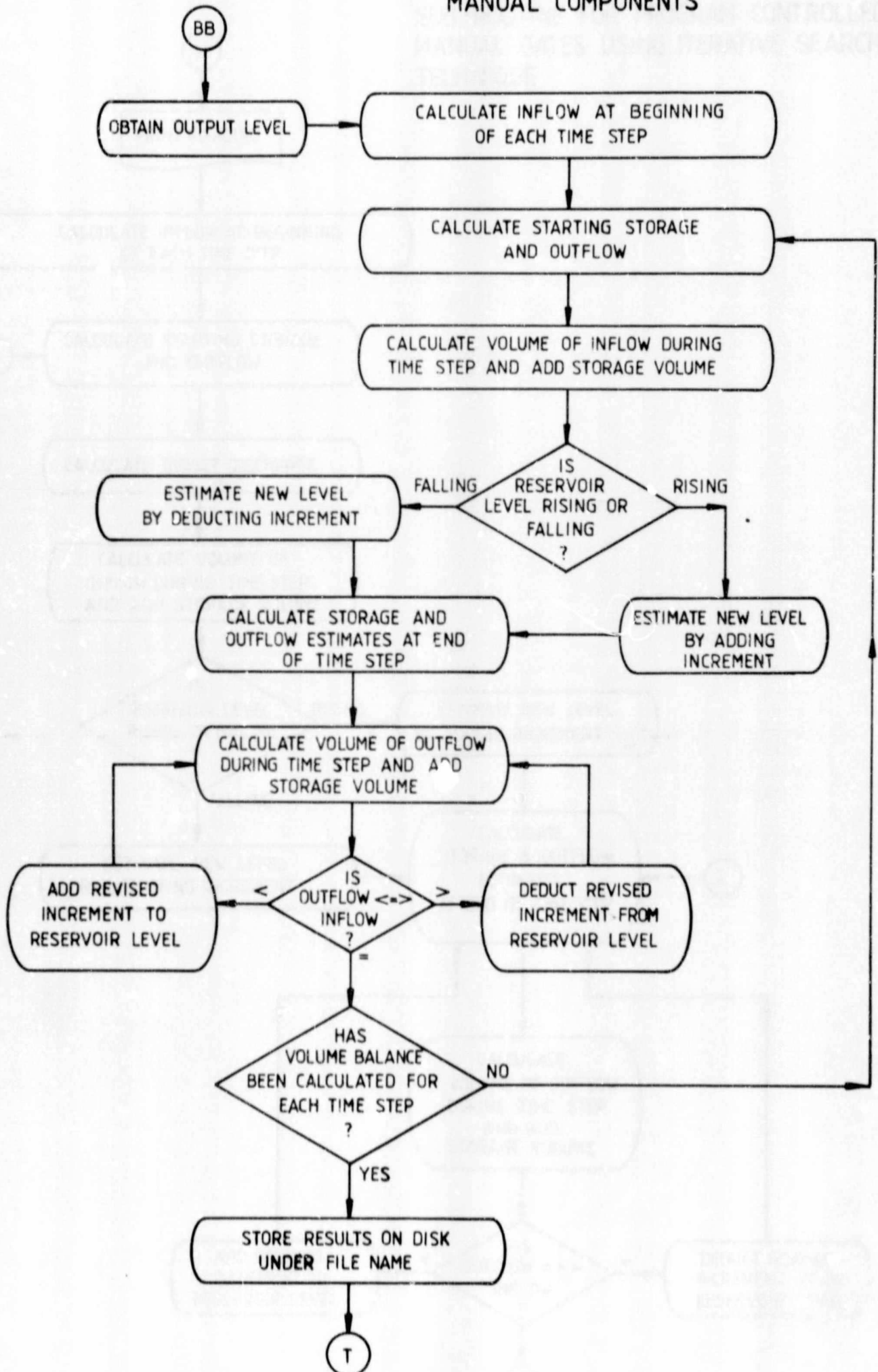
SUB-ROUTINE FOR PROGRAM CONTROLLED MANUAL GATES USING STORAGE INDICATION TECHNIQUE



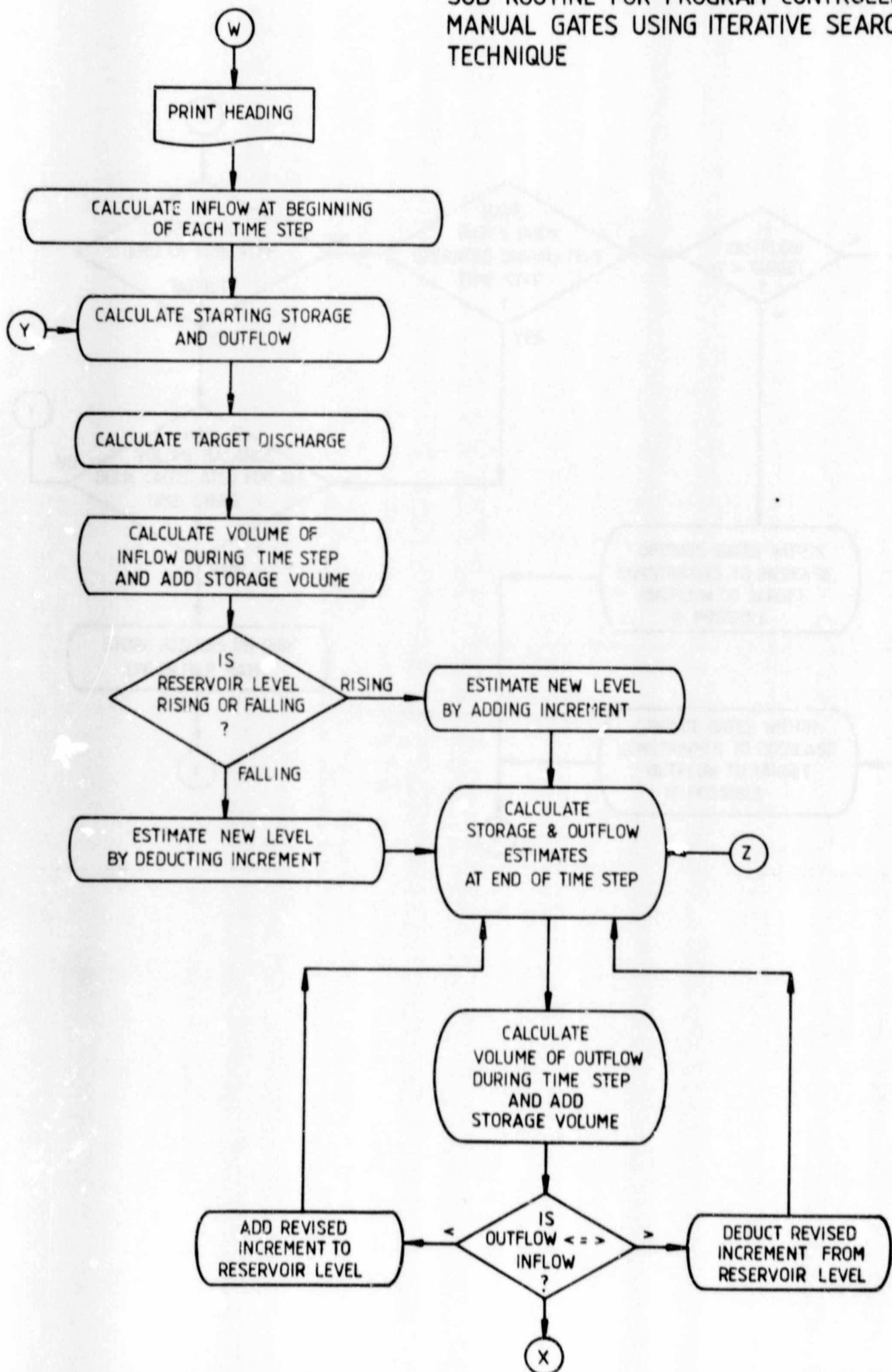


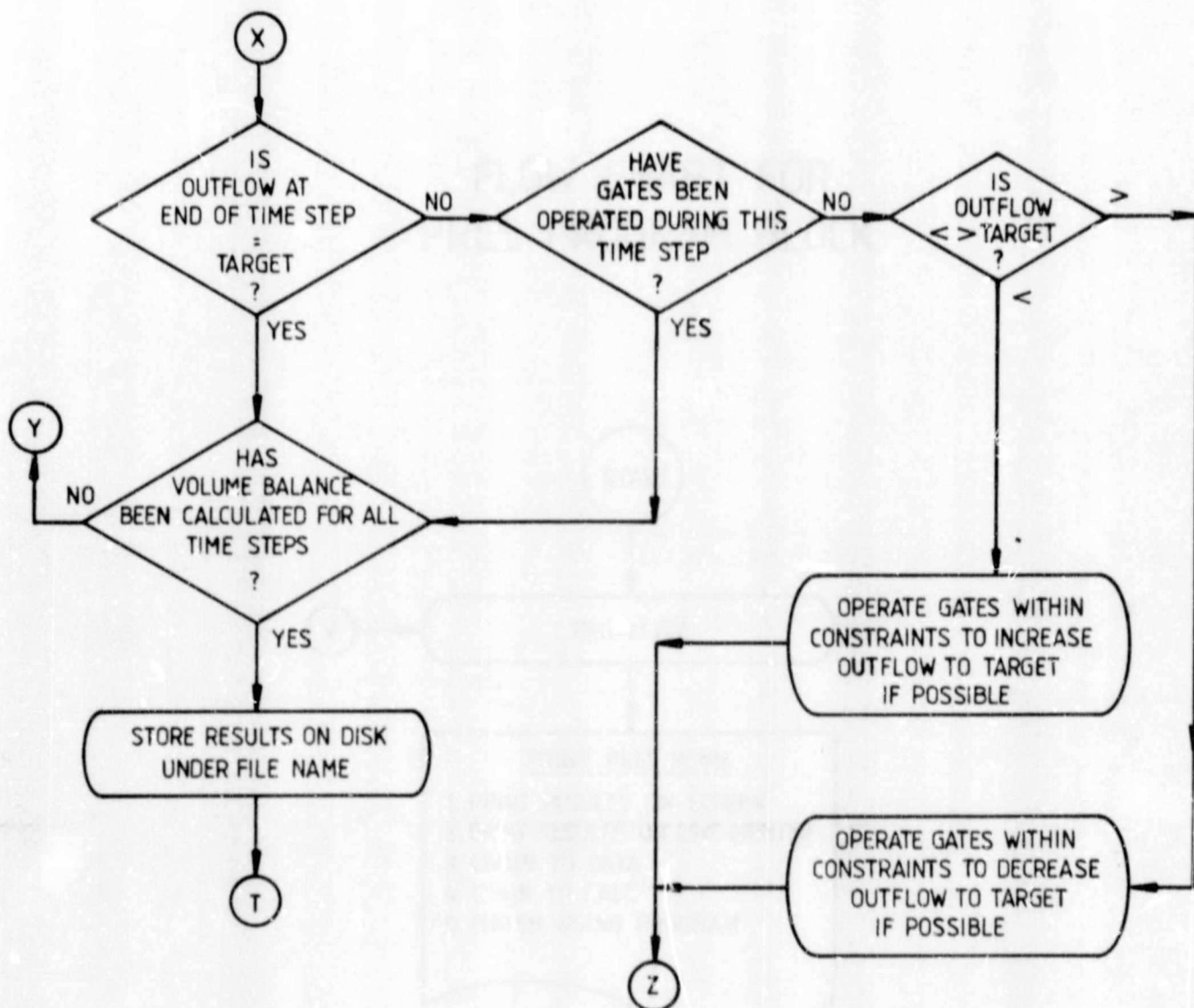


SUB-ROUTINE FOR USER CONTROLLED MANUAL COMPONENTS

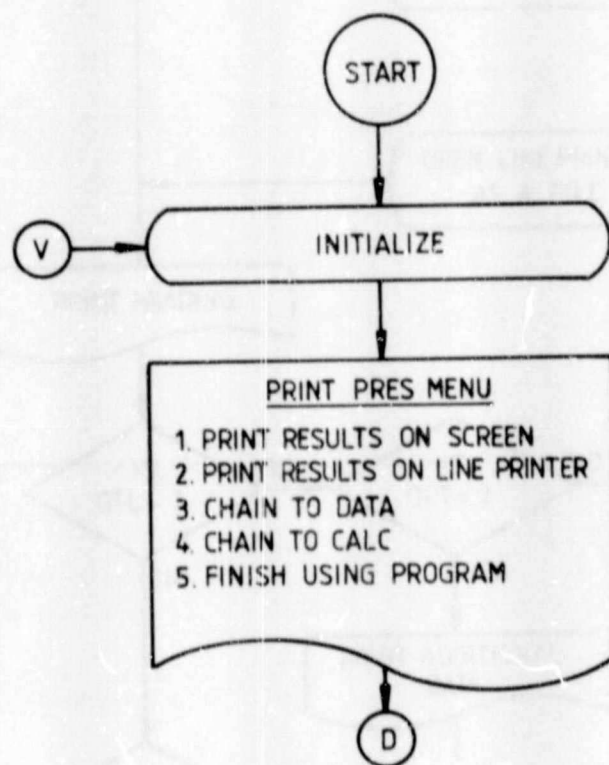


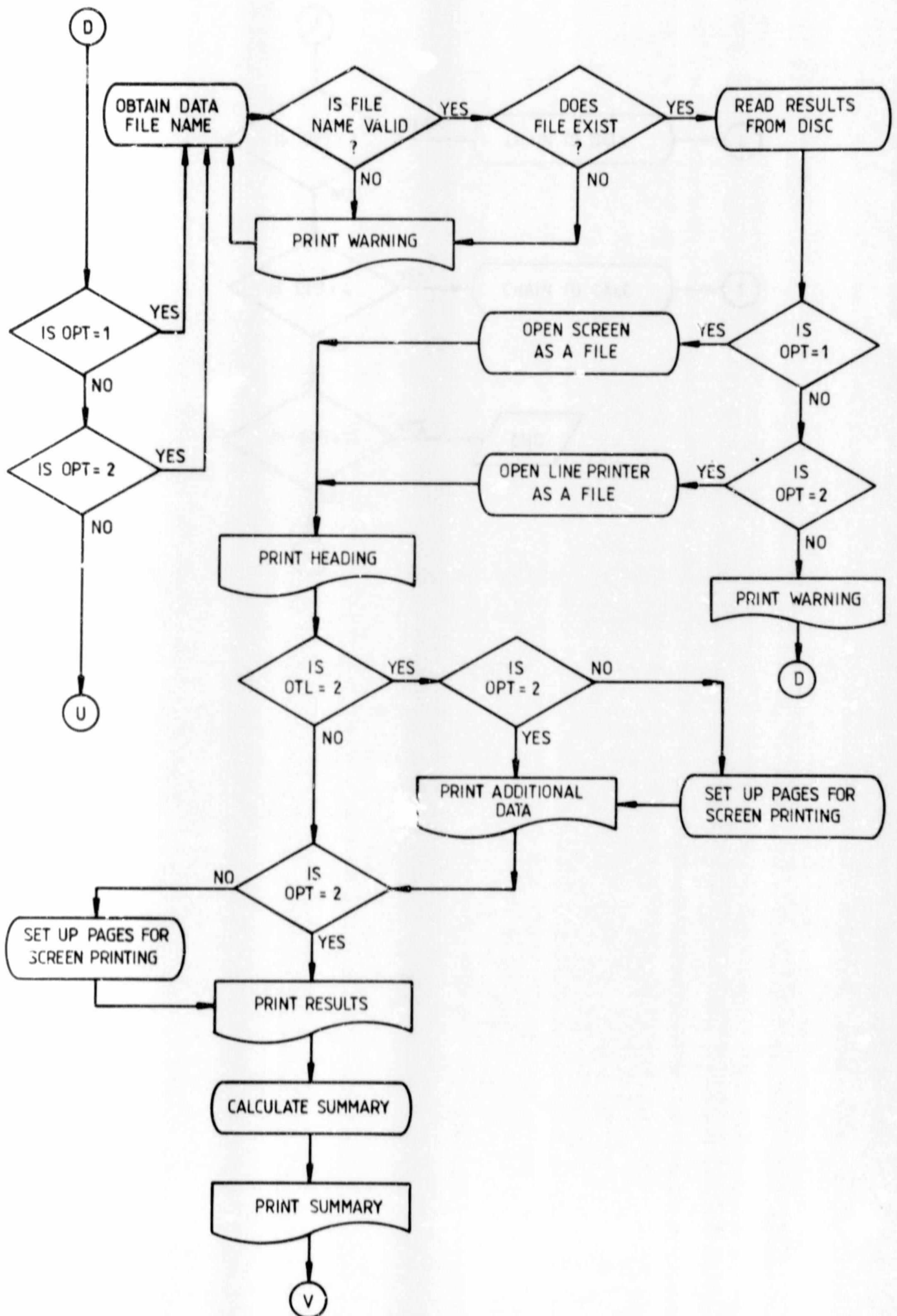
SUB-ROUTINE FOR PROGRAM CONTROLLED MANUAL GATES USING ITERATIVE SEARCH TECHNIQUE

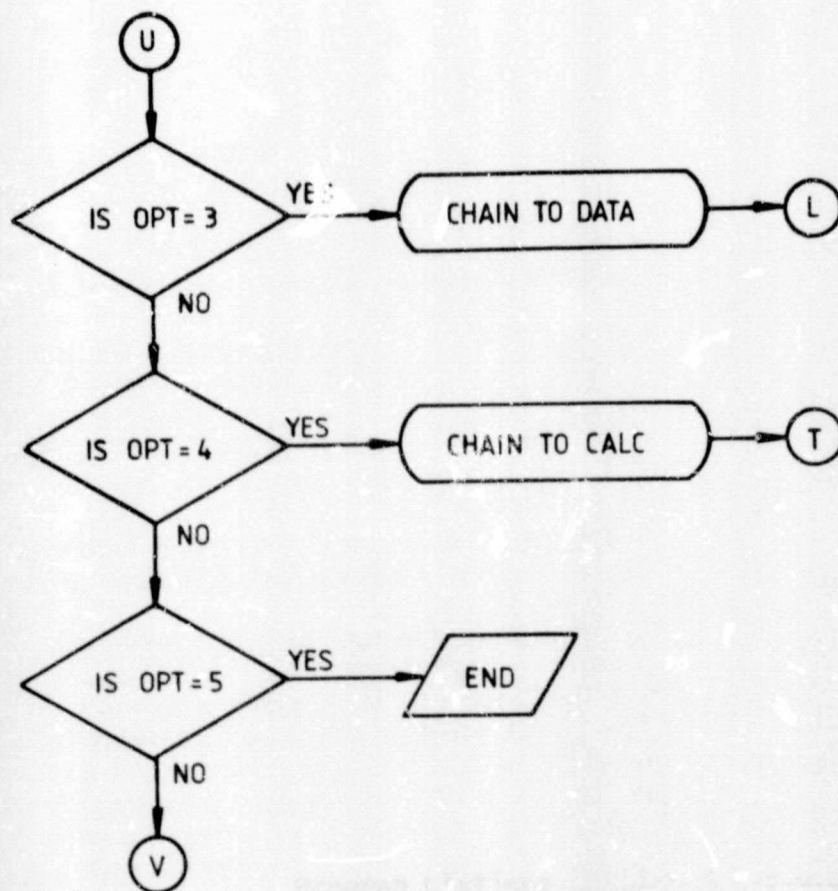




FLOW CHART FOR PRES PROGRAM BLOCK







LISTING FOR DATA PROGRAM

Appendix D

Program Listings

LISTING FOR DATA PROGRAM BLOCK

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10 CLEAR:CLS
20 ' :GENERAL DEFINITIONS -----
30 A$="BOX CULVERTS":B$="FREE OVERFLOW WIER"
40 C$="AUTOMATICALLY CONTROLLED OVERFLOW WEIR"
50 D$="MANUALLY CONTROLLED OVERFLOW WIER"
60 E$="MANUALLY CONTROLLED HIGH PRESSURE OUTLET"
70 F$="FUSEPLUG EMERGENCY SPILLWAY"
80 G$="USER DEFINED SPILLWAY"
90 H$="PLEASE ENTER CORRECT DATA DISK IN DRIVE A"
100 I$="PLEASE REVISE SENSITIVITY AS MODELLING MATRIX TOO LARGE"
110 J$="USER DEFINED SPILLWAY CAPACITY EXCEEDED"
120 K$="JOB ABANDONED****"
130 L$="*****"
*****
140 M$="RESERVOIR LEVEL EXCEEDS STORAGE/ELEVATION DATA"
150 N$="RESERVOIR LEVEL EXCEEDS MAXIMUM ALLOWABLE LEVEL"
160 O$="STORAGE-INDICATION CURVE EXCEEDED"
170 P$="DATA SET INCONSISTENT"
180 ' :PROGRAM HEADING -----
190 PRINT L$:PRINT
200 PRINT "          FLOOD ROUTING THROUGH DAM WITH MULTIPLE SPILLWAY SYSTEM"
210 PRINT:PRINT "          L. FURSTENBURG (011-683-1665)
1985"
220 PRINT:PRINT "          DATA MANIPULATION BLOCK":PRINT:PRINT L$:PRINT
230 PRINT "          THE FOLLOWING OPTIONS ARE PROVIDED:-":PRINT
240 PRINT "          1. ENTER NEW DATA FILE"
250 PRINT "          2. REVISE/VIEW EXISTING DATA FILE"
260 PRINT "          3. DELETE OLD DATA FILES"
270 PRINT "          4. DISPLAY DISK DIRECTORY"
280 PRINT "          5. CHAIN TO CALC"
290 PRINT "          6. CHAIN TO PRES"
300 PRINT "          7. FINISH USING THE PROGRAM"
310 PRINT:INPUT "          PLEASE SELECT OPTION:- ",Q
320 ON OPT GOSUB 370,590,7810,7950,340,350,360
330 GOTO 10
340 CHAIN "A:CALC"
350 CHAIN "A:PRES"
360 CLS:END
370 ' :ENTER NEW DATA FILE-----
-
380 CLS:PRINT L$:PRINT
390 INPUT"PLEASE ENTER NAME OF NEW DATA FILE:-",X$:IF X$="" THEN PRINT CHR$(7);"
A NAME IS REQUIRED":GOTO 390
400 ON ERROR GOTO 480
410 OPEN X$ FOR INPUT AS #1
420 ON ERROR GOTO 0
430 CLOSE #1
440 PRINT CHR$(7):PRINT"THIS FILE ALREADY EXISTS";
450 INPUT". DO YOU WANT TO OVERWRITE (Y/N)";Q$
460 IF Q$="N" THEN GOTO 380
470 GOTO 490
480 RESUME 490
490 PRINT:PRINT"PLEASE ENTER TITLE 1 TO DESCRIBE THE RESERVOIR AND ITS FLOOD STA
TUS AT THE START OF THE SIMULATION"
500 INPUT "",TITLE1$
510 PRINT"PLEASE ENTER TITLE 2 TO DESCRIBE THE FLOOD EVENT"
520 INPUT "",TITLE2$
530 GOSUB 830
540 GOSUB 1220
550 GOSUB 4050
560 GOSUB 4510

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570 GOSUB 4670
580 RETURN
590 ':REVISE EXISTING DATA FILE-----
-
600 CLS:PRINT L$:PRINT
610 INPUT"PLEASE ENTER NAME OF DATA FILE TO BE REVISED/VIEWED:";X$: IF X$="" THE
N PRINT CHR$(7);"A NAME IS REQUIRED": GOTO 610
620 ON ERROR GOTO 660
630 OPEN X$ FOR INPUT AS #1
640 ON ERROR GOTO 0
650 GOTO 680
660 PRINT"THIS FILE DOES NOT EXIST. PLEASE ENTER NEW DISK AND/OR FILENAME."
670 RESUME 600
680 GOSUB 5860
690 GOSUB 7030
700 PRINT:INPUT"DO YOU WANT TO SAVE A REVISED DATA FILE (Y/N)";Q$
710 IF Q$="N" THEN RETURN
720 INPUT"PLEASE ENTER NAME OF REVISED DATA FILE:";X$: IF X$="" THEN PRINT CHR$(
7);"A NAME IS REQUIRED": GOTO 720
730 ON ERROR GOTO 800
740 OPEN X$ FOR INPUT AS #1
750 ON ERROR GOTO 0
760 CLOSE #1
770 PRINT"THIS FILE ALREADY EXISTS"
780 INPUT"DO YOU WANT TO OVERWRITE (Y/N)";Q$
790 IF Q$="N" THEN GOTO 720
800 GOSUB 4670
810 RETURN
820 ':RESERVOIR CHARACTERISTICS -----
-
830 CLS:PRINT L$:PRINT
840 PRINT TITLE1$:PRINT TITLE2$:PRINT
850 PRINT "RESERVOIR BASIN CHARACTERISTICS":PRINT:PRINT L$
860 ':STORAGE  ELEVATION POINTS ENTERED -----

870 PRINT:INPUT"NUMBER OF STORAGE - ELEVATION POINTS:-",NOSTEL
880 PRINT:INPUT"STORAGE CONVERSION FACTOR:-",SCF
890 DIM ELEV(NOSTEL),STOR(NOSTEL)
900 CLS:PRINT "STORAGE - ELEVATION DATA:-":PRINT
910 FOR I=1 TO NOSTEL
920 PRINT "DATA POINT NUMBER ";I
930 INPUT "ELEVATION(#):",ELEV(I)
940 INPUT "STORAGE(#3) :",STOR(I)
950 NEXT I
960 FOR I=1 TO NOSTEL
970 STOR(I)=STOR(I)*SCF
980 NEXT I
990 ':STORAGE - ELEVATION DATA CHECK -----

1000 CLS:PRINT "STORAGE - ELEVATION DATA CHECK:-"
1010 INPUT "DO YOU REQUIRE A DATA CHECK (Y/N)";Q$
1020 IF Q$="N" THEN RETURN
1030 PRINT:PRINT"                ELEVATION                STORAGE"
1040 FOR I=1 TO NOSTEL
1050 PRINT TAB(20) ELEV(I), TAB(40) STOR(I)
1060 IF I=20 THEN GOSUB 1120
1070 IF I=40 THEN GOSUB 1120
1080 IF I=60 THEN GOSUB 1120
1090 NEXT I
1100 GOSUB 1120
1110 RETURN

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1120 INPUT "ARE THESE DATA POINTS CORRECT (Y/N)";Q$
1130 IF Q$="Y" THEN RETURN
1140 INPUT "HOW MANY DATA POINTS MUST BE CORRECTED";N
1150 FOR K=1 TO N
1160 INPUT "WHICH DATA POINT MUST BE CORRECTED";W
1170 INPUT "ELEVATION(M)";ELEV(W)
1180 INPUT "STORAGE(M3)";STOR(W)
1190 STOR(W)=STOR(W)*SCF
1200 NEXT K
1210 GOTO 1000
1220 ':SPILLWAY DATA -----

1230 CLS:PRINT L$:PRINT
1240 PRINT TITLE1$:PRINT TITLE2$:PRINT
1250 PRINT "SPILLWAY DATA":PRINT:PRINT L$:PRINT
1260 ':SPILLWAY CONFIGURATION ENTERED -----
1270 PRINT "PLEASE SELECT THE REQUIRED SPILLWAY";
1280 PRINT " CONFIGURATION FROM THE FOLLOWING LIST:"
1290 PRINT:PRINT " 1. "; A$:PRINT " 2. "; B$:PRINT " 3. "; C$
1300 PRINT " 4. "; D$:PRINT " 5. "; E$:PRINT " 6. "; F$:PRINT "
1310 PRINT:PRINT " 7. "; G$
1310 PRINT:INPUT "SELECT NUMBER OF SPILLWAY COMPONENTS:-",SPILLNO
1320 DIM SPILLWAY(SPILLNO)
1330 FOR I=1 TO SPILLNO
1340 SPILLWAY (I)=0
1350 NEXT I
1360 PRINT "PLEASE INPUT - WITH RETURN AFTER EACH NUMBER - THE SPILLWAY COMPONENTS REQUIRED:"
1370 FOR I=1 TO SPILLNO
1380 INPUT SPILLWAY(I)
1390 NEXT I
1400 ':SPILLWAY CONFIGURATION CHECK -----

1410 CLS:PRINT "YOU HAVE SELECTED A ";SPILLNO;" COMPONENT SPILLWAY SYSTEM";
1420 PRINT " CONSISTING OF:-":PRINT
1430 FOR I=1 TO SPILLNO
1440 ON SPILLWAY (I) GOSUB 1470,1480,1490,1500,1510,1520,1530
1450 NEXT I
1460 GOTO 1540
1470 PRINT " ";A$:RETURN
1480 PRINT " ";B$:RETURN
1490 PRINT " ";C$:RETURN
1500 PRINT " ";D$:RETURN
1510 PRINT " ";E$:RETURN
1520 PRINT " ";F$:RETURN
1530 PRINT " ";G$:RETURN
1540 PRINT:INPUT "IS THIS CORRECT (Y/N)";Q$
1550 IF Q$="Y" THEN GOTO 1580
1560 ERASE SPILLWAY:CLS:GOTO 1270
1570 ':SPILLWAY DATA ENTERED -----

1580 FOR L=1 TO SPILLNO
1590 ON SPILLWAY(L) GOSUB 1620,2150,2210,2630,3330,3890,3960
1600 NEXT L
1610 RETURN
1620 ':BOX CULVERT DATA ENTERED-----
1630 CLS:PRINT A$:PRINT "-----"
1640 PRINT:INPUT "NUMBER OF CULVERTS:-",CULNO
1650 DIM CULHEIGHT(CULNO), CULWIDTH(CULNO), CULINVERT(CULNO)
1660 DIM CULUNCOEF(CULNO),CULSUBCOEF(CULNO),S(5)
1670 PRINT:INPUT "ARE ALL CULVERTS THE SAME WIDTH (Y/N)";Q$

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1680 IF Q$="N" THEN S(1)=1:GOTO 1730
1690 INPUT "WIDTH OF CULVERTS( ):-",CULWIDTH
1700 FOR I=1 TO CULNO
1710 CULWIDTH(I)=CULWIDTH
1720 NEXT I
1730 INPUT "ARE ALL CULVERTS THE SAME HEIGHT (Y/N)";Q$
1740 IF Q$="N" THEN S(2)=2:GOTO 1790
1750 INPUT "HEIGHT OF CULVERTS( ):-",CULHEIGHT
1760 FOR I=1 TO CULNO
1770 CULHEIGHT (I)=CULHEIGHT
1780 NEXT I
1790 INPUT "ARE ALL CULVERT INVERTS AT THE SAME LEVEL (Y/N)";Q$
1800 IF Q$ = "N" THEN S(3)=3:GOTO 1850
1810 INPUT "CULVERT INVERT LEVEL( ):-",CULINVERT
1820 FOR I=1 TO CULNO
1830 CULINVERT(I)=CULINVERT
1840 NEXT I
1850 INPUT "DO ALL CULVERTS HAVE THE SAME UNSUBMERGED DISCHARGE COEFFICIENT (Y/N)"
;Q$
1860 IF Q$ = "N" THEN S(4)=4:GOTO 1910
1870 INPUT "UNSUBMERGED DISCHARGE COEFFICIENT:-",CULUNCOEF
1880 FOR I=1 TO CULNO
1890 CULUNCOEF(I)=CULUNCOEF
1900 NEXT I
1910 INPUT "DO ALL CULVERTS HAVE THE SAME SUBMERGED DISCHARGE COEFFICIENT (Y/N)"
;Q$
1920 IF Q$ = "N" THEN S(5)=5: GOTO 1970
1930 INPUT "SUBMERGED DISCHARGE COEFFICIENT:-",CULSUBCOEF
1940 FOR I=1 TO CULNO
1950 CULSUBCOEF(I)=CULSUBCOEF
1960 NEXT I
1970 FOR I=1 TO 5
1980 IF S(I)>0 THEN GOTO 2010
1990 NEXT I
2000 RETURN
2010 FOR I=1 TO CULNO
2020 CLS:PRINT "CULVERT NUMBER ";I:PRINT
2030 FOR J=1 TO 5
2040 ON S(J) GOSUB 2070,2080,2090,2100,2110
2050 NEXT J
2060 GOTO 2120
2070 INPUT "WIDTH OF CULVERT( ):-",CULWIDTH(I):RETURN
2080 INPUT "HEIGHT OF CULVERT( ):-",CULHEIGHT(I):RETURN
2090 INPUT "CULVERT INVERT LEVEL( ):-",CULINVERT(I):RETURN
2100 INPUT "UNSUBMERGED DISCHARGE COEFFICIENT:-",CULUNCOEF(I):RETURN
2110 INPUT "SUBMERGED DISCHARGE COEFFICIENT:-",CULSUBCOEF(I):RETURN
2120 NEXT I
2130 RETURN
2140 ' :FREE OVERFLOW WIER DATA ENTERED -----

2150 CLS:PRINT B$:PRINT "-----"
2160 PRINT:INPUT "LENGTH OF OVERFLOW WIER( ):-",WIERLENGTH
2170 INPUT "WIER CREST LEVEL( ):-",WIERINVERT
2180 INPUT "WIER DISCHARGE COEFFICIENT:-",WIERCOEF
2190 RETURN
2200 ' :AUTOMATICALLY CONTROLLED WIER DATA ENTERED -----

2210 CLS:PRINT C$:PRINT "-----"
2220 PRINT:INPUT "NUMBER OF GATES:-",GATELNO
2230 DIM GATELS(GATELNO), GATELE(GATELNO), GATELCOEF(GATELNO)
2240 DIM GATELINVERT(GATELNO), GATELWIDTH(GATELNO), GATELHEIGHT(GATELNO), T(4),
GATELTIME(GATELNO)

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2250 PRINT:INPUT "ARE ALL WIER INVERTS AT THE SAME LEVEL (Y/N)";Q$
2260 IF Q$="N" THEN T(1)=1:GOTO 2310
2270 INPUT "WIER CREST LEVEL(=):-",WCL
2280 FOR I=1 TO GATELNO
2290 GATELINVERT(I)=WCL
2300 NEXT I
2310 INPUT "ARE ALL DISCHARGE COEFFICIENTS THE SAME (Y/N)";Q$
2320 IF Q$="N" THEN T(2)=2:GOTO 2370
2330 INPUT "DISCHARGE COEFFICIENT FOR FREEFLOW:-",DFF
2340 FOR I=1 TO GATELNO
2350 GATELCOEF(I)=DFF
2360 NEXT I
2370 INPUT "ARE ALL THE GATES OF THE SAME WIDTH (Y/N)";Q$
2380 IF Q$="N" THEN T(3)=3:GOTO 2430
2390 INPUT "GATE WIDTH(=):-",GW
2400 FOR I=1 TO GATELNO
2410 GATELWIDTH(I)=GW
2420 NEXT I
2430 INPUT "ARE ALL THE GATE TRAVELS THE SAME (Y/N)";Q$
2440 IF Q$="N" THEN T(4)=4:GOTO 2490
2450 INPUT "GATE TRAVEL(=):-",GT
2460 FOR I=1 TO GATELNO
2470 GATELHEIGHT(I)=GT
2480 NEXT I
2490 FOR I=1 TO GATELNO
2500 CLS:PRINT:PRINT "GATE NUMBER ";I:PRINT
2510 INPUT "WATER ELEVATION AT START OF GATE OPENING(=):-",GATELS(I)
2520 INPUT "WATER ELEVATION AT FULL GATE OPENING(=):-",GATELE(I)
2530 FOR J=1 TO 4
2540 ON T(J) GOSUB 2580,2590,2600,2610
2550 NEXT J
2560 NEXT I
2570 RETURN
2580 INPUT "WIER CREST LEVEL(=):-",GATELINVERT(I):RETURN
2590 INPUT "DISCHARGE COEFFICIENT FOR FREE FLOW:-",GATELCOEF(I):RETURN
2600 INPUT "GATE WIDTH(=):-",GATELWIDTH(I):RETURN
2610 INPUT "GATE TRAVEL(=):-",GATELHEIGHT(I):RETURN
2620 'MANUALLY CONTROLLED WIER DATA ENTERED -----

2630 CLS:PRINT Q$:PRINT "-----"
2640 PRINT:INPUT "NUMBER OF GATES:-",GATEMNO
2650 DIM GATEMCOEF(GATEMNO),GATEMINVERT(GATEMNO),GATEMSIZE(GATEMNO)
2660 DIM GATEMWIDTH(GATEMNO),GATEMHEIGHT(GATEMNO),TE(6),GATESPILL(GATEMNO)
2670 PRINT:INPUT "ARE ALL WIER INVERTS AT THE SAME LEVEL (Y/N)";Q$
2680 IF Q$="N" THEN TE(1)=1:GOTO 2730
2690 INPUT "WIER CREST LEVEL(=):-",WCL
2700 FOR I=1 TO GATEMNO
2710 GATEMINVERT(I)=WCL
2720 NEXT I
2730 INPUT "ARE ALL DISCHARGE COEFFICIENTS FOR FREE FLOW THE SAME (Y/N)";Q$
2740 IF Q$="N" THEN TE(2)=2:GOTO 2790
2750 INPUT "DISCHARGE COEFFICIENT FOR FREE FLOW:-",DFF
2760 FOR I=1 TO GATEMNO
2770 GATEMCOEF(I)=DFF
2780 NEXT I
2790 INPUT "ARE ALL DISCHARGE COEFFICIENTS FOR GATE SPILL THE SAME (Y/N)";Q$
2800 IF Q$="N" THEN TE(6)=6:GOTO 2850
2810 INPUT "DISCHARGE COEFFICIENT FOR GATE SPILL:-",DSF
2820 FOR I=1 TO GATEMNO
2830 GATESPILL(I)=DSF

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2840 NEXT I
2850 INPUT "ARE ALL THE GATES OF THE SAME WIDTH (Y/N)";Q$
2860 IF Q$="N" THEN TE(3)=3:GOTO 2910
2870 INPUT "GATE WIDTH(m):-",GW
2880 FOR I=1 TO GATEMNO
2890 GATEMWIDTH(I)=GW
2900 NEXT I
2910 INPUT "ARE ALL THE GATES THE SAME HEIGHT (Y/N)";Q$
2920 IF Q$="N" THEN TE(5)=5:GOTO 2970
2930 INPUT "GATE HEIGHT(m):-",GH
2940 FOR I=1 TO GATEMNO
2950 GATEMSIZE(I)=GH
2960 NEXT I
2970 INPUT "ARE ALL THE GATE TRAVELS THE SAME (Y/N)";Q$
2980 IF Q$="N" THEN TE(4)=4:GOTO 3030
2990 INPUT "GATE TRAVEL(m):-",GT
3000 FOR I=1 TO GATEMNO
3010 GATEMHEIGHT(I)=GT
3020 NEXT I
3030 FOR J=1 TO 6
3040 IF TE(J)>0 THEN GOTO 3070
3050 NEXT J
3060 GOTO 3200
3070 FOR I=1 TO GATEMNO
3080 CLS:PRINT "GATE NUMBER ";I:PRINT
3090 FOR J=1 TO 6
3100 ON TE(J) GOSUB 3140,3150,3160,3170,3180,3190
3110 NEXT J
3120 NEXT I
3130 GOTO 3200
3140 INPUT "WIER CREST LEVEL(m):-",GATEMINVERT(I):RETURN
3150 INPUT "DISCHARGE COEFFICIENT FOR FREE FLOW:-",GATEMCOEF(I):RETURN
3160 INPUT "GATEWIDTH(m):-",GATEMWIDTH(I):RETURN
3170 INPUT "GATE TRAVEL(m):-",GATEMHEIGHT(I):RETURN
3180 INPUT "GATE HEIGHT (m):-",GATEMSIZE(I):RETURN
3190 INPUT "DISCHARGE COEFFICIENT FOR GATE SPILL:-",GATESPILL(I):RETURN
3200 ': OPERATIONAL MODE ENTERED -----

3210 CLS:PRINT "MANUAL GATE OPERATION MODE":PRINT
3220 PRINT "MANUAL GATES CAN BE:-"
3230 PRINT "  1.USER OPERATED"
3240 PRINT "  2.PROGRAM OPERATED":PRINT
3250 INPUT "PLEASE SELECT OPERATION MODE (U/P):-",Q1$
3260 IF Q1$="U" THEN GOTO 8090
3270 INPUT "DELAY TIME TO FIRST OPERATION(hours):-",GATEMSTART
3280 INPUT "MAXIMUM NUMBER OF GATES OPERABLE AT ONE TIME:-",GATEMSUM
3290 INPUT "MAXIMUM DESIRABLE OUTFLOW RATE(m3/s):-",GATEMFLOW
3300 INPUT "MAXIMUM ALLOWABLE OUTFLOW RATE INCREASE(m3/s/h):-",FLOWMESC
3310 RETURN
3320 ': MANUALLY CONTROLLED HIGH PRESSURE GATE DATA ENTERED -----

3330 CLS:PRINT E$:PRINT "-----"
3340 PRINT:INPUT "NUMBER OF GATES:-",GATEHNO
3350 DIM GATEHCOEF(GATEHNO), GATEHINVERT(GATEHNO)
3360 DIM GATEHWIDTH(GATEHNO),GATEHHEIGHT(GATEHNO),U(4)
3370 PRINT:INPUT "ARE ALL INVERTS AT THE SAME LEVEL (Y/N)";Q$
3380 IF Q$="N" THEN U(1)=1:GOTO 3430
3390 INPUT "INVERT LEVEL(m):-",WCL
3400 FOR I=1 TO GATEHNO
3410 GATEHINVERT (I)=WCL
3420 NEXT I

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3430 INPUT "ARE ALL DISCHARGE COEFFICIENTS THE SAME (Y/N)";Q$
3440 IF Q$="N" THEN U(2)=2:GOTO 3490
3450 INPUT "DISCHARGE COEFFICIENT FOR ORIFICE FLOW: ",DFF
3460 FOR I=1 TO GATEHND
3470 GATEHCOEF(I)=DFF
3480 NEXT I
3490 INPUT "ARE ALL GATES OF THE SAME WIDTH (Y/N)";Q$
3500 IF Q$="N" THEN U(3)=3:GOTO 3550
3510 INPUT "GATEWIDTH(m): ",GW
3520 FOR I=1 TO GATEHND
3530 GATEHWIDTH(I)=GW
3540 NEXT I
3550 INPUT "ARE ALL THE GATE HEIGHTS THE SAME (Y/N)";Q$
3560 IF Q$="N" THEN U(4)=4:GOTO 3610
3570 INPUT "GATE HEIGHT(m): ",GT
3580 FOR I=1 TO GATEHND
3590 GATEHHEIGHT(I)=GT
3600 NEXT I
3610 FOR J=1 TO 4
3620 IF U(J)>0 THEN GOTO 3650
3630 NEXT J
3640 GOTO 3770
3650 FOR I=1 TO GATEHND
3660 CLS:PRINT "GATE NUMBER ";I:PRINT
3670 FOR J=1 TO 4
3680 ON U(J)GOSUB 3720,3730,3740,3750
3690 NEXT J
3700 NEXT I
3710 GOTO 3770
3720 INPUT "INVERT LEVEL(m): ",GATEHINVERT(I):RETURN
3730 INPUT "DISCHARGE COEFFICIENT FOR ORIFICE FLOW: ",GATEHCOEF(I):RETURN
3740 INPUT "GATEWIDTH(m): ",GATEHWIDTH(I):RETURN
3750 INPUT "GATE HEIGHT(m): ",GATEHHEIGHT(I):RETURN
3760 ' : OPERATIONAL MODE ENTERED -----

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```

3770 CLS:PRINT "MANUAL GATE OPERATION MODE: ":PRINT
3780 PRINT "MANUAL GATES CAN BE: -"
3790 PRINT "  1.USER OPERATED"
3800 PRINT "  2.PROGRAM OPERATED":PRINT
3810 INPUT "PLEASE SELECT OPERATION MODE (U/P)";Q2$
3820 IF Q2$="U" THEN GOTO 3840
3830 INPUT "DELAY TIME TO FIRST OPERATION(hours): ",GATEHSTART
3840 INPUT "MAXIMUM NUMBER OF GATES OPERABLE AT ONE TIME: ",GATEHSUM
3850 INPUT "MAXIMUM DESIRABLE OUTFLOW RATE(m3/s): ",GATEHFLGW
3860 INPUT "MAXIMUM ALLOWABLE OUTFLOW RATE INCREASE(m3/s/h): ",FLOWHESC
3870 RETURN
3880 ' : FUSEPLUG DATA ENTERED -----

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```

3890 CLS: PRINT F$: PRINT "-----"
3900 PRINT: INPUT "ELEVATION AT START OF WASH(m): ",FUSESTART
3910 INPUT "ELEVATION OF SPILLWAY CREST(m): ",FUSECREST
3920 INPUT "LENGTH OF SPILLWAY(m): ",FUSELENGTH
3930 INPUT "WIER DISCHARGE COEFFICIENT: ",FUSECOEF
3940 RETURN
3950 ' : USER SPILLWAY DATA ENTERED -----

```

```

3960 CLS: PRINT G$: PRINT "-----"
3970 PRINT: INPUT "NUMBER OF DISCHARGE-ELEVATION POINTS: ",PTNDU
3980 DIM ELEVU(PTNDU), DISCHU(PTNDU)
3990 FOR I=1 TO PTNDU
4000 PRINT"ELEVATION(m)      ";I:INPUT ELEVU(I)

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4010 PRINT "DISCHARGE(m3/s)";I:INPUT DISCHU(I)
4020 NEXT I
4030 RETURN
4040 ': FLOOD DATA -----

4050 CLS: PRINT L$: PRINT
4060 PRINT TITLE1$:PRINT TITLE2$:PRINT
4070 PRINT "FLOOD DATA": PRINT: PRINT L$: PRINT
4080 IF OPT=2 THEN GOTO 4100
4090 GOTO 4120
4100 PRINT"PLEASE INPUT TITLE 2:~"
4110 INPUT TITLE2$
4120 PRINT: INPUT "NUMBER OF INFLOW HYDROGRAPH POINTS:~",NOHYD
4130 INPUT "INPUT TIME STEP (hours):~",ISTEP
4140 DIM INFLOW(NOHYD+2)
4150 INPUT"INFLOW AT START OF SIMULATION(m3/s):~",INFLOW(0)
4160 FOR I=1 TO NOHYD
4170 PRINT "INFLOW POINT";I:INPUT"(m3/s):",INFLOW(I)
4180 NEXT I
4190 ': FLOOD DATA CHECK -----

4200 INPUT "IS INFLOW HYDROGRAPH CORRECT AS ENTERED (Y/N)";Q$
4210 IF Q$="Y" THEN RETURN
4220 CLS:PRINT "WOULD YOU LIKE TO:"
4230 PRINT "    a. VIEW A BLOCK OF DATA OR"
4240 PRINT "    b. REVISE SOME DATA POINTS"
4250 INPUT "(a/b)"; Q$
4260 IF Q$="B" GOTO 4390
4270 INPUT "HOW MANY DATA POINTS MUST BE DISPLAYED:~",Q
4280 INPUT "PLEASE ENTER THE NUMBER OF THE FIRST DATA POINT:~",Q1
4290 FOR J=Q1 TO (Q1+Q-1)
4300 PRINT J, INFLOW(J)
4310 NEXT J
4320 PRINT "WOULD YOU LIKE TO:"
4330 PRINT "    a. ACCEPT DATA OR"
4340 PRINT "    b. REVISE SOME DATA POINTS"
4350 INPUT "(a/b)";Q$
4360 IF Q$="B" GOTO 4390
4370 RETURN
4380 ': DATA POINTS REVISED -----

4390 INPUT "HOW MANY DATA POINTS MUST BE REVISED:~",Q
4400 FOR J=1 TO Q
4410 INPUT "DATA POINT TO BE REVISED:~",Q1
4420 INPUT "REVISED VALUE FOR DATA POINT:~",INFLOW(Q1)
4430 NEXT J
4440 PRINT "WOULD YOU LIKE TO:"
4450 PRINT "    a. VIEW A BLOCK OF DATA OR"
4460 PRINT "    b. ACCEPT THE DATA SET"
4470 INPUT "(a/b)";Q$
4480 IF Q$="A" THEN GOTO 4270
4490 RETURN
4500 ': RESERVOIR FLOOD STATUS -----

4510 CLS: PRINT L$: PRINT
4520 PRINT TITLE1$: PRINT TITLE2$: PRINT
4530 PRINT "RESERVOIR FLOOD STATUS": PRINT: PRINT L$: PRINT
4540 IF OPT=2 THEN GOTO 4560
4550 GOTO 4580
4560 PRINT"PLEASE INPUT TITLE 1:~"
4570 INPUT TITLE1$

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4580 INPUT "WATER LEVEL IN RESERVOIR AT START(m):-",RESSTA
4590 INPUT "WATER LEVEL REQUIRED AFTER FLOOD(m):-",RESLEV
4600 INPUT "MAXIMUM ALLOWABLE WATER LEVEL DURING FLOOD(m):-",RESMAX
4610 INPUT "ANALYSIS SENSITIVITY REQUIRED(m):-",LEVSENSE
4620 INPUT "TIME AT START OF ANALYSIS(hours):-",STATIME
4630 INPUT "COMPUTATIONAL TIME STEP (hours):-",CSTEP
4640 INPUT "NUMBER OF TIMESTEPS TO BE ANALYSED:-",NOSTEP
4650 RETURN
4660 ' :STORAGE OF DATA ON DISK-----
4670 CLS:PRINT L$:PRINT
4680 PRINT"DATA STORAGE TO DISK"
4690 PRINT:PRINT L$:PRINT
4700 OPEN X$ FOR OUTPUT AS #1
4710 PRINT #1,NOSTEL
4720 FOR I=1 TO NOSTEL
4730 PRINT #1,ELEV(I):PRINT #1,STOR(I)
4740 NEXT I
4750 PRINT #1,NOSTEP
4760 PRINT #1,SPILLNO
4770 FOR I=1 TO SPILLNO
4780 PRINT #1,SPILLWAY(I)
4790 NEXT I
4800 FOR I=1 TO SPILLNO
4810 ON SPILLWAY(I) GOSUB 4840,4930,4970,5070,5350,5600,5650
4820 NEXT I
4830 GOTO 5710
4840 PRINT #1,CULNO
4850 FOR J=1 TO CULNO
4860 PRINT #1,CULWIDTH(J)
4870 PRINT #1,CULHEIGHT(J)
4880 PRINT #1,CULINVERT(J)
4890 PRINT #1,CULUNCDEF(J)
4900 PRINT #1,CULSUBCOEF(J)
4910 NEXT J
4920 RETURN
4930 PRINT #1,WIERLENGTH
4940 PRINT #1,WIERINVERT
4950 PRINT #1,WIERCOEF
4960 RETURN
4970 PRINT #1,GATELNO
4980 FOR J=1 TO GATELNO
4990 PRINT #1,GATELS(J)
5000 PRINT #1,GATELE(J)
5010 PRINT #1,GATELINVERT(J)
5020 PRINT #1,GATELCOEF(J)
5030 PRINT #1,GATELWIDTH(J)
5040 PRINT #1,GATELHEIGHT(J)
5050 NEXT J
5060 RETURN
5070 PRINT #1,GATEMNO
5080 FOR J=1 TO GATEMNO
5090 PRINT #1,GATEMINVERT(J)
5100 PRINT #1,GATESPILL(J)
5110 PRINT #1,GATEMCOEF(J)
5120 PRINT #1,GATEMWIDTH(J)
5130 PRINT #1,GATEMHEIGHT(J)
5140 PRINT #1,GATEMSIZE(J)
5150 NEXT J
5160 PRINT #1,Q1$
5170 IF Q1$="U" THEN GOTO 5230
5180 PRINT #1,GATEMSTART

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5190 PRINT E1,GATENSUM
5200 PRINT E1,GATENFLOW
5210 PRINT E1,FLOWHESC
5220 RETURN
5230 PRINT E1,Q3
5240 IF Q3=2 THEN GOTO 5310
5250 FOR I=0 TO NOSTEP
5260 FOR J=1 TO GATEMNO
5270 PRINT E1,MGATEDP(I,J)
5280 NEXT J
5290 NEXT I
5300 RETURN
5310 FOR I=0 TO NOSTEP
5320 PRINT E1,MGATEUP(I)
5330 NEXT I
5340 RETURN
5350 PRINT E1,GATEHNO
5360 FOR J=1 TO GATEHNO
5370 PRINT E1,GATEHINVERT(J)
5380 PRINT E1,GATEHCOEF(J)
5390 PRINT E1,GATEHWIDTH(J)
5400 PRINT E1,GATEHEIGHT(J)
5410 NEXT J
5420 PRINT E1,Q2$
5430 IF Q2$="U" THEN GOTO 5480
5440 PRINT E1,GATEHSTART
5450 PRINT E1,GATEHFLOW
5460 PRINT E1,FLOWHESC
5470 RETURN
5480 PRINT E1,Q4
5490 IF Q4=2 THEN GOTO 5560
5500 FOR I=0 TO NOSTEP
5510 FOR J=1 TO GATEHNO
5520 PRINT E1,HGATEUP(I,J)
5530 NEXT J
5540 NEXT I
5550 RETURN
5560 FOR I=0 TO NOSTEP
5570 PRINT E1,HGATEDP(I)
5580 NEXT I
5590 RETURN
5600 PRINT E1,FUSESTART
5610 PRINT E1,FUSECREST
5620 PRINT E1,FUSELENGTH
5630 PRINT E1,FUSECOEF
5640 RETURN
5650 PRINT E1,PTNOU
5660 FOR J=1 TO PTNOU
5670 PRINT E1,ELEVU(J)
5680 PRINT E1,DISCHU(J)
5690 NEXT J
5700 RETURN
5710 PRINT E1,NOHYD
5720 PRINT E1,ISTEP
5730 FOR J=0 TO NOHYD
5740 PRINT E1,INFLOW(J)
5750 NEXT J
5760 PRINT E1,TITLE1$
5770 PRINT E1,TITLE2$
5780 PRINT E1,RESSTA
5790 PRINT E1,RESLEV

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5800 PRINT £1,RESMAX
5810 PRINT £1,LEVSENSE
5820 PRINT £1,STATIME
5830 PRINT £1,CSTEP
5840 PRINT £1,NOSTEP
5850 CLOSE £1:RETURN
5860 ': STORAGE - ELEVATION POINTS FROM DISK -----
-
5870 CLS:PRINT L$:PRINT
5880 PRINT:PRINT"READING STORAGE/ELEVATION DATA FROM DISK."
5890 INPUT £1,NOSTEL
5900 DIM ELEV(NOSTEL),STOR(NOSTEL)
5910 FOR I=1 TO NOSTEL
5920 INPUT £1,ELEV(I),STOR(I)
5930 NEXT I
5940 INPUT £1,NOSTEP
5950 ': SPILLWAY DATA FROM DISK -----

5960 PRINT:PRINT "READING SPILLWAY DATA FROM DISK."
5970 INPUT £1,SPILLNO
5980 DIM SPILLWAY(SPILLNO)
5990 FOR I=1 TO SPILLNO
6000 INPUT £1,SPILLWAY(I)
6010 NEXT I
6020 FOR I=1 TO SPILLNO
6030 ON SPILLWAY(I) GOSUB 6060,6150,6180,6270,6530,6800,6840
6040 NEXT I
6050 GOTO 6920
6060 ': BOX CULVERT DATA -----

6070 INPUT £1,CULNO
6080 DIM CULHEIGHT(CULNO),CULWIDTH(CULNO),CULINVERT(CULNO)
6090 DIM CULUNCOEF(CULNO),CULSUBCOEF(CULNO)
6100 FOR J=1 TO CULNO
6110 INPUT £1,CULWIDTH(J),CULHEIGHT(J),CULINVERT(J)
6120 INPUT £1,CULUNCOEF(J),CULSUBCOEF(J)
6130 NEXT J
6140 RETURN
6150 ': FREE OVERFLOW WIER DATA -----

6160 INPUT £1,WIERLENGTH,WIERINVERT,WIERCOEF
6170 RETURN
6180 ': AUTOMATIC GATE DATA -----

6190 INPUT £1,GATELNO
6200 DIM GATELS(GATELNO),GATELE(GATELNO),GATELCOEF(GATELNO)
6210 DIM GATELIVERT(GATELNO),GATELWIDTH(GATELNO),GATELHEIGHT(GATELNO),GATELTIME(
GATELNO)
6220 FOR J=1 TO GATELNO
6230 INPUT £1,GATELS(J),GATELE(J)
6240 INPUT £1,GATELIVERT(J),GATELCOEF(J),GATELWIDTH(J),GATELHEIGHT(J)
6250 NEXT J
6260 RETURN
6270 ': MANUAL GATE DATA -----

6280 INPUT £1,GATEMNO
6290 DIM GATEMCOEF(GATEMNO),GATEMINVERT(GATEMNO),GATEMSIZE(GATEMNO)
6300 DIM GATEMWIDTH(GATEMNO),GATEMHEIGHT(GATEMNO),GATESPILL(GATEMNO)
6310 FOR J=1 TO GATEMNO
6320 INPUT £1,GATEMINVERT(J),GATESPILL(J),GATEMCOEF(J),GATEMWIDTH(J)
6330 INPUT £1,GATEMHEIGHT(J),GATEMSIZE(J)

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6340 NEXT J
6350 INPUT E1,Q1$
6360 IF Q1$ = "U" THEN GOTO 6390
6370 INPUT E1,GATESTART,GATENSUM,GATEFLOW,FLOWHESC
6380 RETURN
6390 INPUT E1,Q3
6400 IF Q3=2 THEN GOTO 6480
6410 DIM HGATEOP(NOSTEP+1,GATEMNO)
6420 FOR I=0 TO NOSTEP
6430 FOR J=1 TO GATEMNO
6440 INPUT E1,HGATEOP(I,J)
6450 NEXT J
6460 NEXT I
6470 RETURN
6480 DIM HGATEOP(NOSTEP+1)
6490 FOR I=0 TO NOSTEP
6500 INPUT E1,HGATEOP(I)
6510 NEXT I
6520 RETURN
6530 ': MONITOR HIGH PRESSURE GATE DATA -----

6540 INPUT E1,GATEHNO
6550 DIM GATEHCOEF(GATEHNO),GATEHINVERT(GATEHNO)
6560 DIM GATEHWIDTH(GATEHNO),GATEHHEIGHT(GATEHNO)
6570 FOR J=1 TO GATEHNO
6580 INPUT E1,GATEHINVERT(J),GATEHCOEF(J)
6590 INPUT E1,GATEHWIDTH(J),GATEHHEIGHT(J)
6600 NEXT J
6610 INPUT E1,Q2$
6620 IF Q2$ = "U" THEN GOTO 6660
6630 INPUT E1,GATEHSTART,GATEHSUM
6640 INPUT E1,GATEHFLOW,FLOWHESC
6650 RETURN
6660 INPUT E1,Q4
6670 IF Q4=2 THEN GOTO 6750
6680 DIM HGATEOP(NOSTEP+1,GATEHNO)
6690 FOR I=0 TO NOSTEP
6700 FOR J=1 TO GATEHNO
6710 INPUT E1,HGATEOP(I,J)
6720 NEXT J
6730 NEXT I
6740 RETURN
6750 DIM HGATEOP(NOSTEP+1)
6760 FOR I=0 TO NOSTEP
6770 INPUT E1,HGATEOP(I)
6780 NEXT I
6790 RETURN
6800 ': FUSEPLUS DATA -----

6810 INPUT E1,FUSESTART,FUSECREST
6820 INPUT E1,FUSELENGTH,FUSECOEF
6830 RETURN
6840 ': USER SPILLWAY DATA -----

6850 INPUT E1,PTNOU
6860 DIM ELEVU(PTNOU),DISCHU(PTNOU)
6870 FOR J=1 TO PTNOU
6880 INPUT E1,ELEVU(J),DISCHU(J)
6890 NEXT J
6900 RETURN
6910 ':FLOOD DATA READ FROM DISK-----

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6920 PRINT:PRINT"READING "NFLOW HYDROGRAPH FROM DISK."
6930 INPUT I1,NOHYD,ISTEP
6940 DIM INFLOW(NOHYD+2)
6950 FOR I=0 TO NOHYD
6960 INPUT I1,INFLOW(I)
6970 NEXT I
6980 ':RESERVOIR FLOOD STATUS FROM DISK-----
-
6990 PRINT:PRINT"READING RESERVOIR STATUS FROM DISK."
7000 INPUT I1,TITLE1$,TITLE2$
7010 INPUT I1,RESSTA,RESLEV,RESMAX,LEVSENSE,STATIME,CSTEP,NOSTEP
7020 CLOSE I1:RETURN
7030 ':DETERMINE DATA TO BE REVISED/VIEWED-----
-
7040 CLS:PRINT L$:PRINT
7050 PRINT"REVISION/REVIEW OF DATA SET WITH THE FOLLOWING TITLES:"
7060 PRINT:PRINT TITLE1$:PRINT TITLE2$
7070 PRINT:PRINT L$:PRINT
7080 PRINT"DATA IS STORED IN FOUR BLOCKS:"PRINT
7090 PRINT"    1. RESERVOIR CHARACTERISTICS"
7100 PRINT"    2. SPILLWAY DATA"
7110 PRINT"    3. RESERVOIR FLOOD STATUS"
7120 PRINT"    4. FLOOD DATA"
7130 PRINT:PRINT"Do you want to    a)VIEW A BLOCK OF DATA"
7140 PRINT"                or    b)REVISE A BLOCK OF DATA"
7150 INPUT"(a/b)";Q3$
7160 IF Q3$="B" THEN GOTO 7190
7170 PRINT:INPUT"PLEASE SELECT NUMBER OF BLOCKS TO BE DISPLAYED:--",NZ
7180 GOTO 7200
7190 PRINT:INPUT"PLEASE SELECT NUMBER OF BLOCKS TO BE REVISED:--",NZ
7200 PRINT"PLEASE ENTER - WITH RETURN AFTER EACH NUMBER - THE BLOCK NUMBERS REQUIRED:"
7210 DIM OPT(NZ)
7220 FOR I=1 TO NZ
7230 INPUT OPT(I)
7240 NEXT I
7250 IF Q3$="B" THEN GOTO 7270
7260 CLS:PRINT L$:PRINT:PRINT"YOU HAVE SELECTED TO DISPLAY";NZ;"DATA BLOCKS CONSISTING OF:--":PRINT:GOTO 7280
7270 CLS:PRINT L$:PRINT:PRINT"YOU HAVE SELECTED TO EDIT";NZ;"DATA BLOCKS CONSISTING OF:--":PRINT
7280 FOR I=1 TO NZ
7290 IF OPT(I)=1 THEN PRINT "    RESERVOIR CHARACTERISTICS"
7300 IF OPT(I)=2 THEN PRINT "    SPILLWAY DATA"
7310 IF OPT(I)=3 THEN PRINT "    RESERVOIR FLOOD STATUS"
7320 IF OPT(I)=4 THEN PRINT "    FLOOD DATA"
7330 NEXT I
7340 PRINT:INPUT"IS THIS CORRECT (Y/N)";Q4$
7350 IF Q4$="N" THEN ERASE OPT:GOTO 7040
7360 IF Q3$="B" THEN GOTO 7380
7370 GOTO 6690
7380 FOR ZI=1 TO NZ
7390 ON OPT(ZI) GOSUB 7430,7460,7740,7770
7400 NEXT
7410 RETURN
7420 ':REVISION OF RESERVOIR CHARACTERISTICS-----
-
7430 ERASE ELEV,STOR
7440 GOSUB 830
7450 RETURN
7460 ':REVISION OF SPILLWAY DATA-----
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7470 FOR L=1 TO SPILLNO
7480 ON SPILLWAY(L) GOSUB 7540,7570,7590,7630,7660,7690,7710
7490 NEXT L
7500 ERASE SPILLWAY
7510 GOSUB 1230
7520 RETURN
7530 ':CLEAR BOX CULVERTS-----
-
7540 ERASE CULHEIGHT,CULWIDTH,CULINVERT,CULUNCDEF,CULSUBCDEF
7550 RETURN
7560 ':CLEAR WIER-----
-
7570 RETURN
7580 ':CLEAR AUTOMATICALLY CONTROLLED WIER-----
-
7590 ERASE GATELS,GATELE,GATELCDEF,GATELINVERT
7600 ERASE GATELWIDTH,GATELHEIGHT,GATELTIME
7610 RETURN
7620 ':CLEAR MANUALLY CONTROLLED WIER-----
-
7630 ERASE GATEMCDEF,GATEMINVERT,GATEMWIDTH,GATEMHEIGHT,GATEMSIZE,GATESPILL,%GAT
EOP
7640 RETURN
7650 ':CLEAR MANUALLY CONTROLLED HIGH PRESSURE OUTLET-----
-
7660 ERASE GATEHCDEF,GATEHINVERT,GATEHWIDTH,GATEHHEIGHT
7670 RETURN
7680 ':CLEAR FUSEPLUG-----
-
7690 RETURN
7700 ':CLEAR USER SPILLWAY-----
-
7710 ERASE ELEVU,DISCHU
7720 RETURN
7730 ':REVISION OF RESERVOIR FLOOD STATUS-----
-
7740 SOSUB 4510
7750 RETURN
7760 ':REVISION OF FLOOD DATA-----
-
7770 ERASE INFLOW
7780 GOSUB 4050
7790 RETURN
7800 ':DELETE OLD DATA FILES-----
-
7810 CLS:PRINT L$:PRINT
7820 INPUT*PLEASE ENTER NUMBER OF FILES TO BE DELETED:--;NO
7830 FOR I=1 TO NO
7840 INPUT*PLEASE ENTER NAME OF FILE TO BE DELETED:--;X$:IF X$="" THEN PRINT CHR
$(7);*A NAME IS REQUIRED*:GOTO 7840
7850 ON ERROR GOTO 7920
7860 OPEN X$ FOR INPUT AS #1
7870 ON ERROR GOTO 0
7880 CLOSE #1
7890 KILL X$
7900 NEXT I
7910 RETURN
7920 PRINT*THIS FILE DOES NOT EXIST*
7930 RESUME 7840
7940 RETURN
7950 ':DISPLAY DISK DIRECTORY-----
-

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7960 CLS
7970 ON ERROR GOTO 8040
7980 INPUT "WHAT DIRECTORY/DISK MUST BE DISPLAYED";XX$
7990 IF XX$(">")="" AND INSTR(XX$,".")=0 THEN PRINT "A DIRECTORY NAME IS REQUIRED";GOTO 7970
8000 IF XX$="" THEN FILES:GOTO 8020
8010 FILES XX$
8020 PRINT:INPUT "PRESS ANY KEY TO CONTINUE",XX$
8030 RETURN
8040 RESUME 8050
8050 PRINT "ERROR WITH DRIVE";XX$
8060 PRINT:INPUT "PRESS ANY KEY TO CONTINUE",XX$
8070 GOTO 7970
8080 ' :USER OPERATION OF MANUAL GATES-----

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8090 IF Q1$="P" THEN RETURN
8100 CLS:PRINT "DATA REQUIRED FOR OPERATION OF ";D$:PRINT
8110 PRINT "THE USER MAY OPERATE THE GATES IN ONE OF TWO WAYS:--"
8120 PRINT:PRINT "  1.BY DETERMINING A % GATE OPENING FOR EACH INDIVIDUAL GATE
    AT EACH TIME          INTERVAL, OR"
8130 PRINT "  2.BY DETERMINING THE NUMBER OF IDENTICAL GATES TO BE OPENED AT EA
    CH TIME          INTERVAL"
8140 PRINT:INPUT "WHICH METHOD DO YOU PREFER(1/2)";Q3
8150 PRINT:INPUT "PLEASE ENTER NUMBER OF TIMESTEPS FOR GATE OPERATION:--",NOSTEP
8160 IF Q3=2 THEN GOTO 8280
8170 CLS:PRINT "YOU HAVE SELECTED TO DETERMINE A % GATE OPENING FOR EACH GATE AT
    EACH TIME STEP"
8180 INPUT "IS THIS CORRECT(Y/N)";Q$
8190 IF Q$="N" THEN GOTO 8110
8200 DIM MGATEOP(NOSTEP+1,GATEMNO)
8210 FOR J2=0 TO NOSTEP
8220 PRINT "TIME STEP ";J2:PRINT
8230 FOR J3=1 TO GATEMNO
8240 PRINT "GATE OPENING FOR GATE ";J3:INPUT "%";MGATEOP(J2,J3)
8250 NEXT J3
8260 NEXT J2
8270 RETURN
8280 CLS:PRINT "YOU HAVE SELECTED TO DETERMINE THE NUMBER OF GATES TO BE OPENED A
    T EACH TIME          INTERVAL":PRINT
8290 INPUT "IS THIS CORRECT (Y/N)";Q$
8300 IF Q$="N" THEN GOTO 8110
8310 PRINT:PRINT "IF NO VALUE IS ENTERED FOR A TIME STEP THE DEFAULT VALUE DISPLA
    YED WILL BE          ACCEPTED":PRINT
8320 DIM MGATEOP(NOSTEP+1)
8330 FOR J2=0 TO NOSTEP
8340 PRINT "NUMBER OF GATES OPEN AT TIME STEP NUMBER";J2:PRINT "DEFAULT=";JJ$
8350 INPUT II$
8360 IF II$="" THEN II$=JJ$
8370 MGATEOP(J2)=VAL(II$)
8380 JJ$=II$
8390 NEXT J2
8400 RETURN
8410 ' :USER OPERATION OF HIGH PRESSURE GATES-----

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```

8420 CLS:PRINT "DATA REQUIRED FOR OPERATION OF ";E$:PRINT
8430 PRINT "THE USER MAY OPERATE THE OUTLETS IN ONE OF TWO WAYS:--"
8440 PRINT:PRINT "  1.BY DETERMINING A % OUTLET OPENING FOR EACH INDIVIDUAL OUT
    LET AT EACH TIME          INTERVAL, OR"
8450 PRINT "  2.BY DETERMINING THE NUMBER OF IDENTICAL OUTLETS TO BE OPENED AT
    EACH TIME          INTERVAL"
8460 PRINT:INPUT "WHICH METHOD DO YOU PREFER(1/2)";Q4

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