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การพนัน

ภาคผนวก ก. คำสั่งต่าง ๆ ของโปรแกรมเพื่อสร้างภาพบนหน่วยจอภาพ

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0 ***** MAIN MENU PROGRAM *****

900 '< MENU-ROUT >
901 CLEAR 500
902 ON ERROR GOTO 927
903 WIDTH80,25:CONSOLE24,1,0,1:COLOR4:PRINTCHR$(12)
904 CLOSE 1:OPEN "STST.DAT" AS #1:FIELD #1,90 AS A$:GET #1,1:B$=A$:
905 IF MID$(B$,61,1)="X" THEN 913
906 WIDTH 40,20:PRINTCHR$(12):LOCATE 1,10:LINEINPUT "TODAY'S DATE [yyymmdd] : ";V$
907 MID$(B$,61,1)="X":MID$(B$,75,6)=V$:LSET A$=B$:PUT#1,1:CLOSE 1:WIDTH 80,25
908 MONGR:ERASE0:SET00,1:COLOR6:PRINTCHR$(12):LINEH(16,8)-(623,172),PSET,B
909 CLOSE 4:OPEN"pc.scr"FORINPUT AS#4:LOCATE0,8
910 FOR VB=0TO6:LINEINPUT#4,A$:LOCATE30,CSRLIN:PRINTA$:NEXT:CLOSE4
911 LOCATE 16,23:COLOR7:READ X$:PRINT X$;:LINE23,1:CONSOLE24,1
912 X$=INKEY$:IF X$="" OR X$<>CHR$(13) THEN 912:ELSE GS=0:GOSUB 925
913 SET00,2:COLOR5:PRINT CHR$(12):OPEN"main.scr"FOR INPUT AS#4:LOCATE0,4
914 FORVB=0TO14:LINEINPUT#4,A$:COLOR VAL(LEFT$(A$,1)):LOCATE11,CSRLIN:PRINTMID$(A$,2):NEXT:SET01
915 LINEINPUT#4,A$:CLOSE4:COLOR7:LOCATE10,24:PRINTA$;:LINE24,1:W$="123456q@"+CHR$(13)+CHR$(12)
916 X$=INKEY$:IF (X$="" OR INSTR(W$,X$)=0) THEN 916
917 GS=INSTR(W$,X$):PRINT:PRINT:RESTORE992:READGP$,X$,W$:GOSUB 925
918 ON GS GOTO 919,920,921,922,923,951,924,924,924,924
919 LOCATE16,24:PRINTGP$;MID$(W$,1,6);X$; :LINE24,1:LOAD"CMD.PTN",R
920 LOCATE15,24:PRINTGP$;MID$(W$,7,9);X$; :LINE24,1:LOAD"DMD.PTN",R
921 LOCATE16,24:PRINTGP$;MID$(W$,16,7);X$; :LINE24,1:LOAD"RMD.PTN",R
922 LOCATE16,24:PRINTGP$;MID$(W$,23,6);X$; :LINE24,1:LOAD"MMD.PTN",R
923 LOCATE17,24:PRINTGP$;MID$(W$,29,4);X$; :LINE24,1:LOAD"TMD.PTN",R
924 LOCATE17,24:PRINTGP$;MID$(W$,43,4);X$; :LINE24,1:LOAD"QUIT.PTN",R
925 CLOSE 1:OPEN "STST.DAT" AS #1:FIELD #1,90 AS A$:GET #1,1:B$=A$
926 X=CVI(MID$(B$,65*3+31,2))+1:MID$(B$,65*3+31,2)=MKI$(X):LSET A$=B$:PUT#1,1:CLOSE 1:RETURN
927 IF ERR=2 THEN RESUME 908:ELSE STOP '< ERROR SKIP >
950 '< INIT-ROUT >
951 COLOR 2:PRINT CHR$(12):CLOSE 4:OPEN"init.scr"FORINPUT AS#4:LOCATE0,8
952 CLOSE 4:OPEN"init.scr"FORINPUT AS#4:LOCATE0,8
953 FOR VB=0TO6:LINEINPUT#4,A$:LOCATE 23,CSRLIN:PRINTA$:NEXT:CLOSE4
954 COLOR6:LOCATE 25,24:RESTORE 994:READ GP$:PRINT GP$;
955 P$=INKEY$:IF P$="" THEN 955:ELSE ON INSTR("ynYN"+CHR$(13),P$)+1 GOTO 955,956,913,956,913,956
956 PRINT:PRINT:COLOR2:LOCATE 18,24:RESTORE 995:READ GP$:PRINT GP$;:LINE 24,1
957 P$=INKEY$:IF P$="" THEN 957:ELSE IF NOT(P$=CHR$(13) OR P$="y") THEN 956
958 PRINT:PRINT:LOCATE 22,24:READ GP$:PRINT GP$;:LINE 24,1:REMOVE2:FORMAT 2
959 FIELD#0,128 AS A$,128 AS B$:LSET A$=STRING$(128,255):LSET B$=STRING$(128,255)
960 FOR S=1 TO 12:DSK0$ 2,18,S: NEXT
961 LSET A$=STRING$(6,CLST)+STRING$(2*15,255)+STRING$(2,254)+STRING$(90,255)
962 FOR S=14 TO 16: DSK0$ 2,18,S: NEXT
963 LSET A$=STRING$(128,0):LSET B$=STRING$(128,0):DSK0$ 2,18,13:REMOVE2:MOUNT 2
964 CLOSE1,2:OPEN"2:nm.tab" FOR OUTPUT AS 1:OPEN"2:tx.tab" FOR OUTPUT AS 2:CLOSE1,2:REMOVE2
965 PRINT:PRINT:COLOR4:LOCATE 17,24:RESTORE 997:READ GP$:PRINT GP$;:LINE 24,1
966 P$=INKEY$:IF P$="" THEN 966:ELSE IF NOT(P$=CHR$(13) OR P$="y")THEN 966
967 PRINT:PRINT:COLOR5:LOCATE 23,24:RESTORE 998:READ GP$:PRINT GP$;
968 P$=INKEY$:IF P$="" THEN 968:ELSE ON INSTR("ynYN"+CHR$(13),P$)+1 GOTO 967,956,913,956,913,956

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991 DATA " <<<--- Hit the RETURN key to continue --->>>"
992 DATA " <<<----- LOADING ", " PROGRAM ----->>>"
993 DATA "CREATEDUPLICATEDISPLAYMODIFYTEXTINITIALIZEQUIT"
994 DATA "Create the DATA disk? (y/n) : "
995 DATA "<----- Insert NEW disk in drive 2 ----->"
996 DATA "<----- Disk Initialization ----->"
997 DATA "<----- Remove DATA disk from drive 2 ----->"
998 DATA "Do you wish to do again? (y/n) : "
999 DATA "Press the RETURN key to return to program menu "
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1 ' CREATE PATTERNS OF A PICTURE.

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1000 '< MAIN-ROUT >
1001 CLEAR 2000:CONSOLE24,1
1002 ON ERROR GOTO 1049
1003 DIM CO(99),RO(99):LCZ=5:UCZ=634:LWZ=5:UWZ=185:COLOR3:PRINTCHR$(12)
1004 SET@0:IF POINTH(16,8)=0 THEN ERASE@:LINEH(16,8)-(623,172),PSET,8
1005 COLOR6:PRINTCHR$(12):OPEN"cmd.scr"FOR INPUT AS#4:LOCATE0,8
1006 FORVB=0TO6:LINEINPUT#4,A$:LOCATE23,CSRLIN:PRINTA$:NEXT:CLOSE4:SET@1
1007 COLOR4:REMOVE2
1008 LOCATE18,24:RESTORE 1901:READ P$:PRINT P$;:LINE 24,1
1009 P$=INKEY$:IF LEN(P$)=0 THEN 1009:ELSE PRINT:PRINT
1010 IF P$=CHR$(13)ORP$=CHR$(121)THEN MOUNT 2:SET2,"":GT$="2:na.tab":ELSE 1008
1011 LOCATE 26,24:RESTORE 1902:READP$:COLOR7:PRINTP$;
1012 LINEINPUT P$:PRINT :PRINT:IF LEN(P$)=0THEN1021 'p-name
1013 RESTORE 1922:READ GP$,GN$
1014 G1Z=0:G2Z=INSTR(GP$,LEFT$(P$,1)):IF G2Z=0 THEN 1021
1015 IF LEN(P$)=1 THEN 1022
1016 FOR G3Z=2 TO LEN(P$)
1017 GN$=MID$(P$,G3Z,1):G2Z=0:G2Z=INSTR(GP$,GN$):IF G2Z<>0 THEN 1019
1018 G2Z=0:G2Z=INSTR(GN$,GN$):IFG2Z=0THEN 1021
1019 NEXT
1020 GOTO 1022
1021 LOCATE23,24:RESTORE1903:READP$:PRINTP$;:GOTO1012 'Invalid
1022 OPEN GT$ FOR INPUT AS#2
1023 IF EOF(2) THEN CLOSE 2:XPZ=1:GOTO 1032 'not dup.
1024 LINEINPUT#2,GN$:IF P$<>GN$ THEN 1023:ELSE CLOSE 2:GOTO 1025
1025 LOCATE21,24:RESTORE1904:READGP$:PRINTGP$;
1026 LINEINPUTGP$:PRINT:IFLEN(GP$)=0ORGP$="n"THEN1027:ELSEP$=GP$:GOTO1013
1027 COLOR4:PRINTCHR$(12)
1028 LOCATE23,24:RESTORE1905:READGP$:PRINTGP$;:LINE 24,1:GOSUB 1069:PRINT
1029 PRINT:LOCATE27,24:RESTORE1906:READGP$:COLOR7:PRINTGP$;:LINEINPUTPO$:PRINT
1030 IF PO$=CHR$(13) OR PO$="y" THEN XPZ=0:GOTO 1033
1031 IF PO$<>"n" THEN PRINT:PRINT:GOTO 1029:ELSE PRINT:PRINT:GOTO 1011
1032 ERASE@
1033 COLOR7:PRINTCHR$(12)
1034 CLOSE1:OPEN"2:"+P$+".pic"AS#1:FIELD#1,2AS CO$,2AS LP$,248AS DA$,4AS NW$
1035 D$="":BF$="":C=319:R=99:RESTORE1926:FORIX=1TO5:READ NPZ(IX):NEXT
1036 LOCATE29,24:RESTORE1907:READ GP$:PRINTGP$;:LINEINPUT PO$:PRINT
1037 IFLEN(PO$)=0THEN PRINT:PRINT:GOTO 1036:ELSE PO$=LEFT$(PO$,1)
1038 IF PO$="?"THEN A$="sel.scr":ZZ=11:GOSUB1043:GOTO 1036
1039 RESTORE1924:READGP$:POZ=INSTR(GP$,PO$):IFPOZ=0 THEN 1036 ' <--check.
1040 POZ=(POZ MOD 5)+1
1041 ON POZ GOSUB 1055,1100,1331,1300,1200 'q,c,n,m,e
1042 X=0:GOTO 1036
1043 ' ? for help (a$,zz)
1044 PRINTCHR$(12):SET@0:LOCATE0,0:OPEN A$ FOR INPUT AS #4
1045 FORVB=0TOZZ:LINEINPUT#4,A$:COLORVAL(LEFT$(A$,1)):PRINTMID$(A$,2):NEXT
1046 LOCATE0,24:LINEINPUT#4,A$:PRINT MID$(A$,2);:LINE24,1:CLOSE4
1047 A$=INKEY$:IF A$=""THEN1047:ELSE COLOR7:PRINTCHR$(12):SET@1:RETURN
1048 A$="mis.scr":ZZ=7:GOSUB1043:GOTO 1116
1049 STOP ' < ERROR SKIP >

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1050 PRINT:PRINT:RESTORE1906:READGP$:LOCATE20,24:PRINTGP$;
1051 GP%=INKEY$:IF GP%="" THEN 1051:ELSE PRINT:PRINT
1052 IF GP%="y"OR GP%=CHR$(13) THEN G4%=1:RETURN
1053 IF GP%<>"n" THEN 1050
1054 G4%=0:RETURN
1055 IF D$="" AND BF$=""THEN1060 'q :no residual
1056 BF%=BF$+D$:TT=TT+1
1057 LSET DA$=BF$:LSET LP$=MKI$(TT):LSET NW$=MKI$(0)+MKI$(0)
1058 LSET CD$=MKI$(SC)
1059 PUT #1,LOF(1)+1:BF$="" :SC=0:TT=0:D$=""
1060 IF XPZ<>0 THEN OPEN GT$ FOR APPEND AS#2:PRINT #2,P$:CLOSE2 'add name
1061 LOCATE23,24:RESTORE 1908:READP$:PRINTP$;:LINEINPUT PO$:PRINT
1062 IFLEN(PO$)=0THEN 1061:ELSE PO$=LEFT$(PO$,1)
1063 GP$="nyNY":PO=0:PO=INSTR(GP$,PO$)
1064 IF PO=0 THEN 1061:ELSE ON (POMOD2)+1 GOTO 1007,1065
1065 LOCATE16,24:RESTORE 1909:READP$:PRINTP$;:LINE24,1
1066 P$=INKEY$:IFP$<>CHR$(13) THEN 1066:ELSE LOAD"PC",R 'exit
1067 ' DISP-S-ROUT
1068 PRINT:PRINT
1069 CLOSE1:OPEN "2:"+P$+".pic"AS#1:FIELD #1,2AS CD$,2AS LP$,248AS DA$,4AS NW$
1070 ERASE@:IF LOF(1)=0 THEN 1084
1071 FOR GAZ=1 TO LOF(1):GET#1,GAZ:GSZ=CVI(CD$):IF GSZ=(-1)THEN 1083
1072 GTZ=CVI(LP$):IF GTZ=0 THEN 1083
1073 CC=CVI(LEFT$(NW$,2)):RR=CVI(RIGHT$(NW$,2)):GOZ=1
1074 FOR GBZ=1TOGTZ:G1Z=CVI(MID$(DA$,GOZ,2)):GPZ=VAL(RIGHT$(STR$(G1Z),2))
1075 GOZ=GOZ+2
1076 IF G1Z<1000 THEN FORGNZ=1TOGPZ:GOZ=GOZ+4:NEXT GNZ:GOTO 1082
1077 FOR GNZ=1TOGPZ:CO(GNZ)=CVI(MID$(DA$,GOZ,2))+CC
1078 RO(GNZ)=CVI(MID$(DA$,GOZ+2,2))+RR:GOZ=GOZ+4
1079 NEXT GNZ
1080 J=1:K=GPZ:FGZ=INT(G1Z/1000)
1081 ON FGZ GOSUB 1468,1450,1458,1495,1471 'cre-p,a,c,e,l
1082 NEXT GBZ
1083 NEXT GAZ
1084 RETURN
1100 '< CRET-ROUT >
1101 X=99:RESTORE 1910:COLOR4:READ GP$
1102 IF D$<>" " THEN BF$=BF$+D$:TT=TT+1
1103 IF BF$="" THEN GOTO 1107
1104 LSET DA$=BF$:LSET LP$=MKI$(TT):LSET NW$=MKI$(0)+MKI$(0)
1105 LSET CD$=MKI$(SC)
1106 PUT #1,LOF(1)+1
1107 PN=0:BF$="" :GKZ=0:K=0:J=1:CT=0:TT=0:SC=0
1108 GOSUB 1509:K=GKZ
1109 PRINT:PRINT:RESTORE 1925:READ GW$
1110 RESTORE 1911:LOCATE 24,24:READ GP$:PRINT GP$;
1111 GP%=INKEY$:IF GP%=""THEN 1111:ELSE PRINT:PRINT
1112 IF GP%="?"THEN A$="type.scr":ZZ=17:GOSUB1043:GOTO 1110
1113 FGZ=INSTR(GW$,GP$):IF FGZ=0 THEN 1110
1114 FGZ=(FGZ MOD 5)+1
1115 IF GKZ>NPZ(FGZ) THEN 1121
1116 RESTORE 1912:LOCATE19,24:READ GP$:PRINTGP$;:LINE 24,1
1117 GP%=INKEY$:IF GP%=""THEN 1117:ELSE IF GP%="?" THEN 1048

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1118 PRINT:PRINT:GAZ=INSTR("acdACD",GP%):IF GAZ=0THEN1116:ELSE ON GAZ GOTO1119,1109,1120
1119 X=99:GOSUB1508:K=GKZ:GOTO1115 'a
1120 X=99:GOTO1126 'd
1121 RESTORE 1913:READ GP%:PN=PN+1:LOCATE 21,24:PRINT GP%;
1122 LOCATE 47,24:PRINT USING "###";PN;:LINE24,1
1123 ON FGZ GOSUB 1468,1450,1458,1495,1471 'cre-p,a,c,e,l
1124 D$="":D%=MKI$(FGZ*1000+K)
1125 FOR ZZ=1 TO K :D%=D%+MKI$(CO(ZZ))+MKI$(RO(ZZ)):NEXT ZZ
1126 PRINT:PRINT: GOTO 1036
1127 RESTORE 1917:GOTO 1133
1128 RESTORE 1918:GOTO 1133
1129 RESTORE 1916:GOTO 1133
1130 RESTORE 1921:GOTO 1133
1131 RESTORE 1920:GOTO 1133
1132 RESTORE 1915
1133 PRINT:PRINT:READ GP%:LOCATE 19,24:PRINT GP%;
1134 LOCATE 52,24:PRINT USING"###";JK;:LINE24,1:RETURN
1200 MV=0:ES=1:GOTO 1301 '< ERAS-ROUT >
1300 MV=1:ES=0 '< MOVE-ROUT >
1301 PRINT:PRINT:RESTORE1914:READGP%:LOCATE26,25:PRINTGP%;
1302 LOCATE 48,25:PRINT USING"###";PN;:LOCATE55,25
1303 LINEINPUT GP%:IF GP%="" THEN JK=PN:GOTO 1306 'last pn.
1304 IF GP%="0" THEN PRINT:PRINT:RETURN
1305 JK=VAL(GP%):IF JK=0 OR JK>PN THEN 1301
1306 GOSUB 1132:GOSUB 1701 'search
1307 IF ES=1 THEN GOSUB 1129:ELSE GKZ=97:X=99:GOSUB1507:CX=CO(99)-CO(98):RY=RO(99)-RO(98):GOSUB 1131
1308 J=1:K=NP:ON FGZ GOSUB 1480,1454,1460,1501,1483 'era-p,a,c,e,l
1309 IF ES=1 AND MV=0 THEN 1312
1310 GOSUB 1130:FOR NNZ=1 TO NP:CO(NNZ)=CO(NNZ)+CX:RO(NNZ)=RO(NNZ)+RY:NEXT
1311 J=1:K=NP:ON FGZ GOSUB 1468,1450,1458,1495,1471 'cre-p,a,c,e,l
1312 GOSUB 1050:IF G4Z=1 THEN 1318
1313 GOSUB 1128:IF ES=1 THEN 1316
1314 J=1:K=NP:ON FGZ GOSUB 1480,1454,1460,1501,1483 'era-p,a,c,e,l
1315 FOR NNZ=1 TO NP:CO(NNZ)=CO(NNZ)-CX:RO(NNZ)=RO(NNZ)-RY:NEXT
1316 J=1:K=NP:ON FGZ GOSUB 1468,1450,1458,1495,1471 'cre-p,a,c,e,l
1317 D$="":GOTO 1301 'repeat.
1318 GOSUB 1127:IF ES=1 THEN 1325
1319 DD%=MKI$(FGZ*1000+NP)
1320 FOR NNZ=1 TO NP:DD%=DD%+MKI$(CO(NNZ))+MKI$(RO(NNZ)):NEXT
1321 D%=DD%:IF WE=1 THEN 1324
1322 DD%=DA%:MID$(DD%,MD,ZL+2)=D%:LSET DA%=DD%
1323 PUT #1,RC :GOTO 1317
1324 MID$(BF%,MD,ZL+2)=D%:GOTO 1317 'repeat.
1325 DD%=MKI$(-(FGZ*1000)+NP)+D%:D$="":D%=DD%
1326 IF WE=1 THEN 1330
1327 DD%=DA%:MID$(DD%,MD,ZL+2)=D%:LSET DA%=DD%
1328 LSET LP$(MKI$(NS-1)):PUT #1,RC
1329 PN=PN-1:GOTO 1317
1330 MID$(BF%,MD,ZL+2)=D%:TT=TT-1:GOTO 1329

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1331 ' next
1332 BF$=BF$+D$:TT=TT+1:IF LEN(BF$)<237 THEN 1336
1333 LSET DA$=BF$:LSET LP$=MKI$(TT):LSET NW$=MKI$(0)+MKI$(0)
1334 LSET CD$=MKI$(SC)
1335 PUT #1,LOF(1)+1:BF$="":SC=1:TT=0:IF DU=1 THEN RETURN
1336 CT=LEN(BF$):X=0:GKX=0:J=1:GOSUB 1508:K=GKX:GOTO 1109
1400 ' CRET-S-ROUT
1401 IF C1<LCZ THEN C1=LCZ:ELSE IF C1>UCZ THEN C1=UCZ
1402 IF R1<LWZ THEN R1=LWZ:ELSE IF R1>UWZ THEN R1=UWZ
1403 IF C2<LCZ THEN C2=LCZ:ELSE IF C2>UCZ THEN C2=UCZ
1404 IF R2<LWZ THEN R2=LWZ:ELSE IF R2>UWZ THEN R2=UWZ
1405 RETURN
1406 DX=(CO(J)-CO(J+1))*21/64:DY=(RO(J+1)-RO(J))*29/40:RA=.5*SQR(DX*DX+DY*DY)
1407 C4=CO(J)+.5*(CO(J+1)-CO(J)):R4=RO(J)-.5*(RO(J)-RO(J+1))
1408 RETURN
1409 FOR Z=0 TO 1.5708 STEP 5/(6*AA)
1410 DX=RA*COS(Z)*64/21:DY=RB*SIN(Z)*40/29:C1=C4+DX:R1=R4+DY:C2=C4-DX:R2=R4-DY
1411 IF NOT(C1<LCZ OR C1>UCZ OR R1<LWZ OR R1>UWZ) THEN PRESETH(C1,R1)
1412 IF NOT(C1<LCZ OR C1>UCZ OR R2<LWZ OR R2>UWZ) THEN PRESETH(C1,R2)
1413 IF NOT(C2<LCZ OR C2>UCZ OR R1<LWZ OR R1>UWZ) THEN PRESETH(C2,R1)
1414 IF NOT(C2<LCZ OR C2>UCZ OR R2<LWZ OR R2>UWZ) THEN PRESETH(C2,R2)
1415 NEXT:RETURN
1416 FOR Z=0 TO 1.5708 STEP 5/(6*AA)
1417 DX=RA*COS(Z)*64/21:DY=RB*SIN(Z)*40/29:C1=C4+DX:R1=R4+DY:C2=C4-DX:R2=R4-DY
1418 IF NOT(C1<LCZ OR C1>UCZ OR R1<LWZ OR R1>UWZ) THEN PSETH(C1,R1)
1419 IF NOT(C1<LCZ OR C1>UCZ OR R2<LWZ OR R2>UWZ) THEN PSETH(C1,R2)
1420 IF NOT(C2<LCZ OR C2>UCZ OR R1<LWZ OR R1>UWZ) THEN PSETH(C2,R1)
1421 IF NOT(C2<LCZ OR C2>UCZ OR R2<LWZ OR R2>UWZ) THEN PSETH(C2,R2)
1422 NEXT:RETURN
1423 DL=SQR(DX*DX+DY*DY):SZ=DY/DL:CM=DX/DL 'L,ANGLE
1424 IF DX<0! THEN TZ=DY/DX:AB=ABS(ATN(TZ)):ELSE TZ=SGN(DY):AB=1.5708
1425 IF SZ=0 AND CM=0 AND TZ=0 THEN GOTO 1429
1426 IF SZ=0 AND CM<0 AND TZ<0 THEN AB=3.14159-AB:GOTO 1429
1427 IF SZ<0 AND CM<0 AND TZ=0 THEN AB=3.14159+AB:GOTO 1429
1428 IF SZ<0 AND CM=0 AND TZ<0 THEN AB=6.28319-AB:GOTO 1429
1429 RETURN
1430 C1=CO(J):R1=RO(J):C2=CO(J+1):R2=RO(J+1):C3=CO(J+2):R3=RO(J+2)'arc compute
1431 DX=(C1-C2)*21/64:DY=(R2-R1)*29/40:GOSUB 1423:AA=AB:L1=DL
1432 DX=(C3-C2)*21/64:DY=(R2-R3)*29/40:GOSUB 1423
1433 IF AA<AB THEN 1435
1434 DX=C1:C1=C3:C3=DX:DX=R1:R1=R3:R3=DX:DX=AA:AA=AB:AB=DX:DX=L1:L1=DL:DL=DX
1435 AC=ABS(AA-AB):IF AC=3.14159 THEN F6=5:RETURN 'as line
1436 IF AC>3.14159 THEN AB=6.2832-AC:SZ=-1:ELSE AB=AC:SZ=1
1437 L1=.5*L1:DL=.5*DL:AC=ATN((DL-L1*COS(AB))/(L1*SIN(AB))):RA=L1/COS(AC)
1438 AB=AA+SZ*AC:C4=C2+RA*COS(AB)*64/21:R4=R2-RA*SIN(AB)*40/29
1439 DX=(C1-C4)*21/64:DY=(R4-R1)*29/40:GOSUB 1423:AA=AB
1440 DX=(C2-C4)*21/64:DY=(R4-R2)*29/40:GOSUB 1423:AC=AB
1441 DX=(C3-C4)*21/64:DY=(R4-R3)*29/40:GOSUB 1423
1442 IF AA<AB AND AB<AC AND AC<AA THEN AC=AB:AA=AA-AB:GOTO 1446
1443 IF AA<AB AND AB>AC AND AC>AA THEN AC=AA:AA=AB-AA:GOTO 1446
1444 IF AA<AB AND AB>AC AND AC<AA THEN AC=AB:AA=6.2832+AA-AB:GOTO 1446
1445 IF AA<AB AND AB<AC AND AC>AA THEN AC=AB:AA=6.2832+AA-AB:GOTO 1446
1446 RETURN

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1447 DX=C4+RA*COS(ZA)*64/21:DY=R4-RA*SIN(ZA)*40/29
1448 NN=NOT(DX<LCZ OR DX>UCZ OR DY<LWZ OR DY>UWZ)
1449 RETURN
1450 GOSUB 1430:IF FGZ=5THEN1468 'cre-a/1
1451 FOR ZA=AC TO AC+AA STEP 5/(6*RA):GOSUB 1447:IF NN THEN PSETH(DX,DY)
1452 NEXT ZA
1453 RETURN
1454 GOSUB1430:IF FGZ=5THEN1480 'del-a/1
1455 FOR ZA=AC TO AC+AA STEP 5/(6*RA):GOSUB 1447:IF NN THEN PRESETH(DX,DY)
1456 NEXT ZA
1457 RETURN
1458 IF K=3 THEN GOSUB1430:ELSE GOSUB 1406 'cre-c-3/2
1459 RB=RA:AA=RA:GOTO 1416
1460 IF K=3 THEN GOSUB1430:ELSE GOSUB 1406 'del-c-3/2
1461 RB=RA:AA=RA:GOTO 1409
1462 IF R1=R2 THEN 1464 'cre-1
1463 GOSUB1401:LINEH(C1,R1)-(C2,R2),PSET:RETURN
1464 IF R1<LWZ OR R1>UWZ THEN RETURN
1465 IF C1>C2 THEN SP=-2:ELSE SP=2
1466 FOR ZI=C1TOC2 STEPSP:IF NOT(ZI<LCZORZI>UCZ)THENPSETH(ZI,R1)
1467 NEXT:RETURN
1468 IF NOT(K=2 AND FGZ=1)THEN 1471 'cre-1/p/r
1469 C1=CO(J):R1=RO(J):GOSUB1470:C1=CO(J+1):R1=RO(J+1):GOSUB1470:RETURN'cre-r
1470 C2=CO(J):R2=RO(J+1):GOSUB1462:C2=CO(J+1):R2=RO(J):GOSUB1462:RETURN'cre-r
1471 FOR ZA=JTOK-1:C1=CO(ZA):R1=RO(ZA):C2=CO(ZA+1):R2=RO(ZA+1):GOSUB1462:NEXT
1472 IF FGZ<>5THEN C1=CO(J):R1=RO(J):C2=CO(K):R2=RO(K):GOSUB1462 'cre-p
1473 RETURN
1474 IF R1=R2 THEN 1476 'del-1
1475 GOSUB1401:LINEH(C1,R1)-(C2,R2),PRESET:RETURN
1476 IF R1<LWZ OR R1>UWZ THEN RETURN
1477 IF C1>C2 THEN SP=-2:ELSE SP=2
1478 FOR ZI=C1TOC2 STEPSP:IF NOT(ZI<LCZORZI>UCZ)THENPRESETH(ZI,R1)
1479 NEXT:RETURN
1480 IF NOT(K=2 AND FGZ=1)THEN 1483 'del-1/p/r
1481 C1=CO(J):R1=RO(J):GOSUB1482:C1=CO(J+1):R1=RO(J+1):GOSUB1482:RETURN'del-r
1482 C2=CO(J):R2=RO(J+1):GOSUB1474:C2=CO(J+1):R2=RO(J):GOSUB1474:RETURN'del-r
1483 FOR ZA=JTOK-1:C1=CO(ZA):R1=RO(ZA):C2=CO(ZA+1):R2=RO(ZA+1):GOSUB1474:NEXT
1484 IF FGZ<>5THEN C1=CO(J):R1=RO(J):C2=CO(K):R2=RO(K):GOSUB 1474 'del-p
1485 RETURN
1486 DX=(CO(J)-CO(J+1))*21/64:DY=(RO(J+1)-RO(J))*29/40:GOSUB 1423
1487 IF AB>=3.14159 THEN AB=AB-3.14159:SWAP CO(J),CO(J+1):SWAP RO(J),RO(J+1)
1488 RETURN
1489 J=1:GOSUB1486:RA=.5*DL:AL=AB:J=3:GOSUB1486:RB=.5*DL 'cre-e
1490 IFAL>ABTHENSWAPAL,AB:SWAPRA,RB:SWAPCO(1),CO(3):SWAPRO(1),RO(3):SWAPCO(2),CO(4):SWAPRO(2),RO(4)
1491 IF RA<RB THEN AA=RB:ELSE AA=RA
1492 C2=COS(AB):R2=SIN(AB):C4=CO(1)+.5*(CO(2)-CO(1)):R4=RO(1)-.5*(RO(1)-RO(2)):RETURN
1493 CZ=COS(ZZ):SZ=SIN(ZZ):DX=(RA*C2*CZ-RB*R2*SZ)*64/21:DY=(RA*R2*CZ+RB*C2*SZ)*40/29
1494 C1=C4+DX:R1=R4+DY:NN=NOT(C1<LCZ OR C1>UCZ OR R1<LWZ OR R1>UWZ):RETURN
1495 GOSUB 1489 'cre-e
1496 IF AL=0 OR AL=3.14159 THEN 1416
1497 FOR ZZ=1E-04 TO 6.2832 STEP 5/(6*AA):GOSUB 1493 'inclined
1498 IF NN THEN PSETH(C1,R1)
1499 NEXT

```

```

1500 RETURN
1501 GOSUB 1489 'del-e
1502 IF AL=0 OR AL=3.14159 THEN 1409
1503 FOR ZZ=1E-04 TO 6.2832 STEP 5/(6*AA):GOSUB 1493 'inclined
1504 IF NN THEN PREETH(C1,R1)
1505 NEXT
1506 RETURN
1507 RESTORE 1919 :COLOR4:READ GP$:GOTO 1509
1508 RESTORE 1910 :COLOR4:READ GP$
1509 GOSUB 1511:GOTO 1631
1510 A$="set.scr":ZZ=21:GOSUB1043:GOTO 1602
1511 PRINT:PRINT
1512 LOCATE18,24:COLOR7:PRINTGP$;GK=GKZ:COLOR6:PRINT" P#";:PRINTUSING"###";GK;
1513 COLOR5:PRINT", C:";:PRINTUSING"###";C;
1514 COLOR4:PRINT", R:";:PRINTUSING"###";R;:COLOR7:RETURN
1600 '< DEFN-ROUT >
1601 GOSUB 1512
1602 X$=INKEY$:IF X$<>" "THEN IF X$="?"THEN1510:ELSE X=ASC(X$)
1603 IF X>57 THEN 1635:ELSE IF X<28 THEN 1636
1604 IF X<48 THEN 1621
1605 IF (F1 OR F2)=0 THEN PRESETH(C,R)
1606 ON (X-47) GOTO 1607,1613,1614,1615,1616,1633,1617,1618,1619,1620
1607 ZYZ=0
1608 FOR ZZX=1 TO GKZ
1609 IF C=CO(ZZX) AND R=RO(ZZX) THEN 1611
1610 ZYZ=ZYZ+1:CO(ZYZ)=CO(ZZX):RO(ZYZ)=RO(ZZX)
1611 NEXT ZZX
1612 X=0:GKZ=ZYZ:PRESETH(C,R):F1=0:F2=0: GOTO 1635
1613 C=C-2:R=R+1:GOTO 1629
1614 R=R+1:GOTO 1629
1615 C=C+2:R=R+1:GOTO 1629
1616 C=C-1:GOTO 1629
1617 C=C+1:GOTO 1629
1618 C=C-2:R=R-1:GOTO 1629
1619 R=R-1:GOTO 1629
1620 C=C+2:R=R-1:GOTO 1629
1621 IF X>31 THEN 1635
1622 IF (F1 OR F2)=0 THEN PRESETH(C,R)
1623 ON (X-27) GOTO 1624,1625,1626,1627
1624 C=C+40:GOTO 1628
1625 C=C-40:GOTO 1628
1626 R=R-20:GOTO 1628
1627 R=R+20:GOTO 1628
1628 X=0
1629 IF C<0 THEN C=639 :ELSE IF C>639 THEN C=0
1630 IF R<0 THEN R=199:ELSE IF R>199 THEN R=0
1631 IF POINTH(C,R)=0 THEN PSETH(C,R):F2=0:ELSE F2=1
1632 F1=0:BEEP1:BEEP1:BEEP1:BEEP0:GOTO 1601
1633 IF C=CO(GKZ) AND R=RO(GKZ) THEN 1601
1634 GKZ=GKZ+1:F1=1:CO(GKZ)=C:RO(GKZ)=R
1635 PRESETH(C,R):FOR ZZ=1 TO 50:NEXT:PSETH(C,R):FOR ZZ=1 TO 50:NEXT:GOTO 1601
1636 IF X<>13 THEN 1635
1637 RETURN

```

```

1700 ' SRCH-S-ROUT
1701 GS=0:RESTORE 1915:READ GP$
1702 IF D$<>"" THEN BF$=BF$+D$:D$=""
1703 IF BF$="" THEN SF=0:ELSE SF=1
1704 IF SC=0 THEN 1716          'search in bf$.
1705 RC=PR
1706 IF RC>LOF(1) THEN 1716    'search in bf$.
1707 GET #1,RC:NS=CVI(LP$):CCZ=CVI(LEFT$(NW$,2)):RRZ=CVI(RIGHT$(NW$,2))
1708 IF JK>GS+NS THEN RC=RC+1:GS=GS+NS:GOTO 1706
1709 MD=1:CCZ=0:RRZ=0
1710 FT=CVI(MID$(DA$,MD,2)):NP=VAL(RIGHT$(STR$(FT),2))
1711 IF SGN(FT)=(-1) THEN 1713
1712 GS=GS+1:IF JK=GS THEN 1714 'gen. data.
1713 MD=MD+4*NP+2:GOTO 1710
1714 WE=0:ZL=4*NP:D$=MID$(DA$,MD+2,ZL):FGZ=INT(FT/1000):GOTO 1722
1715 'search in BF$.
1716 MD=1:WE=1
1717 FT=CVI(MID$(BF$,MD,2)):NP=VAL(RIGHT$(STR$(FT),2))
1718 IF FT<0 THEN 1720
1719 GS=GS+1:IF GS=JK THEN 1721
1720 MD=MD+4*NP+2:GOTO 1717
1721 ZL=4*NP:D$=MID$(BF$,MD+2,ZL):FGZ=INT(FT/1000)
1722 MB=1
1723 FOR NNZ=1 TO NP:CO(NNZ)=CVI(MID$(D$,MB,2))+CCZ
1724 RO(NNZ)=CVI(MID$(D$,MB+2,2))+RRZ:MB=MB+4
1725 NEXT
1726 K=NP:GKZ=NP
1727 SF=1:RETURN
1901 DATA "<----- Insert DATA disk in drive 2 ----->"
1902 DATA "Enter picture-name : "
1903 DATA "Re-enter for invalid name : "
1904 DATA "Re-enter for duplicated name : "
1905 DATA "<----- Pattern displaying ----->"
1906 DATA "Is this correct? (y/n) : "
1907 DATA "Select (c,e,m,n,q) : "
1908 DATA "Do you wish to do again? (y/n) : "
1909 DATA "Press the RETURN key to return to program menu "
1910 DATA " Define position(s) ----> "
1911 DATA " Define Type of subpart ----> "
1912 DATA "Positions & Type are mismatch! (a,c,d) : "
1913 DATA "<----- Creating subpart # ----->"
1914 DATA "Enter subpart no. (0-###) : "
1915 DATA " <----- Searching for subpart # ----->"
1916 DATA " <----- Erasing for subpart # ----->"
1917 DATA "<----- Data updating for subpart # ----->"
1918 DATA "<----- Re-creating for subpart # ----->"
1919 DATA "<----- Define the destinations ----> "
1920 DATA " <----- Replacing for subpart # ----->"
1921 DATA " <----- Restoring for subpart # ----->"
1922 DATA " abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNQRSTUUVWXYZ"
1923 DATA "0123456789###!%*"
1924 DATA "cneqCNME@"
1925 DATA "acelpACELP"
1926 DATA 2,3,2,4,2,2

```



2 ' DUPLICATE THE CREATED PATTERNS.

```

2000 '< MAIN-ROUT >
2001 CLEAR 2000
2002 ON ERROR GOTO 2050
2003 DIM CO(99),RO(99):GR$="2:nm.tab":LCZ=5:UCZ=635:LWZ=5:UWZ=189
2004 CONSOLE 24,1:COLOR3:PRINTCHR$(12)
2005 SET@0:IF POINTH(16,8)=0 THEN ERASE@:LINEH(16,8)-(623,172),PSET,B
2006 COLOR6:PRINTCHR$(12):OPEN"dmd.scr"FOR INPUT AS 4: LOCATE 0,8
2007 FORVB=0TO6:LINEINPUT #4,A$:LOCATE 23,CSRLIN:PRINT A$:NEXT:CLOSE 4:SET@1
2008 COLOR 4:REMOVE 1,2
2009 LOCATE 17,24:RESTORE 2401:READ GP$:PRINT GP$ '#1
2010 P$=INKEY$:IF P$="" THEN 2010:ELSE PRINT :PRINT
2011 IF P$=CHR$(13) OR P$="y" THEN GN$="1:nm.tab":GOTO 2015
2012 IF P$="n" THEN GN$=GR$:GOTO 2017:ELSE 2009
2013 LOCATE 18,24:READ GP$:PRINT GP$:LINE 24,1
2014 P$=INKEY$:IF P$<>CHR$(13) THEN 2014:ELSE PRINT:PRINT:RETURN
2015 RESTORE 2402:GOSUB 2013
2016 RESTORE 2403:GOSUB 2013:MOUNT1
2017 RESTORE 2404:GOSUB 2013:MOUNT2:SET2,"X"
2018 PRINTCHR$(12):ERASE@
2019 LOCATE 24,24:RESTORE 2405
2020 READGP$:PRINTGP$;:LINEINPUT P$:PRINT:PRINT:IF P$=""THEN G1Z=0:ELSE GOSUB2051'NS-name
2021 IF G1Z<>1 THEN LOCATE26,24:RESTORE2406:GOTO 2020 'invalid
2022 GT$=GM$:GOSUB2061:IF G1Z=0 THEN LOCATE25,24:RESTORE2407:GOTO 2020 '<== Undefined.
2023 PRINT:PRINT:LOCATE23,24:RESTORE2408:READ GP$:PRINTGP$;:LINE24,1:GOSUB 2101
2024 PRINT:PRINT:LOCATE27,24:RESTORE 2409:READ GP$:PRINT GP$;
2025 P0$=INKEY$:IF P0$="" THEN 2025
2026 IF P0$=CHR$(13) OR P0$="y" THEN MM$=P$:GOTO 2028
2027 IF P0$<>"n" THEN 2025:ELSE 2019
2028 PRINT:PRINT:LOCATE24,24:RESTORE2405:READ GP$:MID$(GP$,15,6)="COPIED":PRINT GP$;
2029 LINEINPUT P$:PRINT:IF LEN(P$)=0 THEN 2028 'COPIED-name.
2030 GOSUB 2051:IF G1Z=0 THENLOCATE26,24:RESTORE2406:READ GP$:PRINT GP$;:GOTO 2029 'Invalid
2031 GT$=GR$:GOSUB 2061:IF G1Z=0 THEN XPZ=1:CC$=P$:GOSUB 2200:GOTO 2039
2032 LOCATE 25,24:RESTORE 2410:READ GP$:PRINT GP$; 'Duplicated
2033 LINEINPUT GP$:PRINT:IF NOT(LEN(GP$)=0 OR GP$="n")THEN P$=GP$:GOTO 2030
2034 LOCATE 23,24:RESTORE 2408:READ GP$:PRINT GP$;:LINE 24,1:GOSUB 2102
2035 LOCATE 27,24:RESTORE 2409:READ GP$:PRINT GP$;
2036 P0$=INKEY$:IF P0$="" THEN 2036:ELSE PRINT:PRINT
2037 IF P0$=CHR$(13) OR P0$="y" THEN XPZ=0:CC$=P$
2038 IF P0$<>"n" THEN 2035:ELSE 2028
2039 IF XPZ<>0 THEN OPEN GT$ FOR APPEND AS#2:PRINT #2,P$:CLOSE2 'quit
2040 PRINT:PRINT
2041 LOCATE23,24:RESTORE 2416:READ GP$:PRINT GP$;:LINEINPUT P0$:PRINT
2042 IFLEN(P0$)=0THEN 2041:ELSE P0$=LEFT$(P0$,1)
2043 P0=0:P0=INSTR("nyNY",P0$)
2044 IF P0=0 THEN 2041:ELSE ON (P0MOD2)+1 GOTO 2009,2045
2045 RESTORE 2417:GOSUB 2013 'remove #1,2
2046 RESTORE 2418:GOSUB 2013
2047 RESTORE 2419:GOSUB 2013
2048 LOAD"PC",R
2049 END
2050 IF ERR=56 AND ERL=2006 THEN REMOVE1:MOUNT1:GOTO 2006:ELSE STOP '< ERROR-SKIP >

```



```

2051 ' Format Check
2052 RESTORE 2420:READGP$,GN$
2053 G1%=0:G2%=INSTR(GP$,LEFT$(P$,1)):IFG2%=0THEN2060
2054 IFLEN(P$)=1THEN2059
2055 FORG3%=2TOLEN(P$)
2056 GW%=MID$(P$,G3%,1):G2%=0:G2%=INSTR(GP$,GW$):IFG2%<>0THEN2058
2057 G2%=0:G2%=INSTR(GN$,GW$):IFG2%=0THEN2060
2058 NEXT G3%
2059 G1%=1
2060 RETURN
2061 ' Dup. Check
2062 G1%=0:OPEN GT$ FOR INPUT AS#2
2063 IF EOF(2) THEN GOTO 2065
2064 LINEINPUT#2,GN$:IF P$<>GN$ THEN 2063:ELSE G1%=1
2065 CLOSE 2:RETURN
2100 '< SRCH-ROUT >
2101 OPEN LEFT$(GM$,2)+P$+".pic" AS #1:GOTO 2103
2102 OPEN "2:"+P$+".pic" AS #1
2103 FIELD #1,2 AS CD$,2 AS LP$,248 AS DA$,4 AS NW$
2104 ERASE@
2105 FOR GA%=1 TO LOF(1):GET#1,GA%:IF CVI(CD$)=(-1)THEN 2116
2106 GT%=CVI(LP$):IF GT%=0 THEN 2116
2107 CC=CVI(LEFT$(NW$,2)):RR=CVI(RIGHT$(NW$,2)):GO%=1
2108 FOR GB%=1TOGT%
2109 G1%=CVI(MID$(DA$,GO%,2)):GP%=VAL(RIGHT$(STR$(G1%),2)):GO%=GO%+2
2110 IF G1%<1 THEN GO%=GO%+4*GP%:GOTO 2109
2111 FOR GN%=1TOGP%:CO(GN%)=CVI(MID$(DA$,GO%,2))+CC
2112 RO(GN%)=CVI(MID$(DA$,GO%+2,2))+RR:GO%=GO%+4
2113 NEXT GN%
2114 FG%=INT(G1%/1000):J=1:K=GP%:ON FG% GOSUB 2362,2350,2354,2371,2365 'p,a,c,e,l
2115 NEXT GB%
2116 NEXT GA%
2117 CLOSE 1
2118 RETURN
2119 RC=1:PP=0 '- PART COUNT -
2120 GET#1,RC:IF CVI(CD$)=0 THEN PP=PP+1
2121 IF RC<LOF(1) THEN RC=RC+1:GOTO 2120
2122 RETURN
2123 RC=1:KP=0 '- PART SEARCH -
2124 GET#1,RC:IF CVI(CD$)<>0 THEN 2126
2125 KP=KP+1:IF KP=JP THEN PR=RC:GOTO 2127
2126 IF RC<LOF(1) THEN RC=RC+1:GOTO 2124
2127 RETURN
2128 ERASE @ '- DISPLAY part #JP -
2129 RC=PR:GET#1,RC:GS=CVI(CD$):IF GS=(-1)THEN 2140
2130 GT%=CVI(LP$):IF GT%=0 THEN 2140
2131 CC%=CVI(LEFT$(NW$,2)):RR%=CVI(RIGHT$(NW$,2)):GO%=1:GB%=1
2132 FOR GA=1 TO GT%
2133 FT=CVI(MID$(DA$,GO%,2)):NP=VAL(RIGHT$(STR$(FT),2)):FG%=INT(FT/1000):GO%=GO%+2
2134 IF FT<1000 THEN GO%=GO%+4*NP:GOTO 2133

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2135 FOR GNZ=1 TO NP:CO(GNZ)=CVI(MID$(DA$,60Z,2))+CCZ
2136 RO(GNZ)=CVI(MID$(DA$,60Z+2,2))+RRZ:60Z=60Z+4
2137 NEXT GNZ
2138 J=1:K=NP:ON FGZ GOSUB 2362,2350,2354,2371,2365 'p,a,c,e,l
2139 NEXT GA
2140 IF RC<LOF(1) THEN RC=RC+1:GET#1,RC:ON CVI(CD$)+2 GOTO 2140,2141,2130
2141 RETURN
2200 '< COPY-ROUT >
2201 OPEN LEFT$(GM$,2)+MM$+".pic" AS#1:FIELD#1,2AS CD$,2AS LP$,248AS DA$,4AS NW$
2202 OPEN "2:"+CC$+".pic" AS #3:FIELD #3,2 AS F0$,2 AS F1$,248 AS F2$,4 AS F3$
2203 GOSUB 2119
2204 PRINT:PRINT:RESTORE 2411:READ GP$:LOCATE 18,24:PRINT GP$;
2205 LOCATE 55,24:PRINT USING"###";PP;
2206 LOCATE 62,24:LINEINPUT GP$:IF GP$="" THEN 2204
2207 IF GP$="0" THEN RETURN 'QUIT
2208 IF GP$="a" OR GP$="all" THEN 2228
2209 JP=VAL(GP$):IF JP=0 OR JP>PP THEN 2204
2210 PRINT:PRINT:RESTORE 2412:READ GP$:LOCATE 17,24:PRINTGP$;
2211 LOCATE 48,24:PRINT USING"###";JP;:LINE 24,1
2212 GOSUB 2123:GOSUB 2128 :PRINT:PRINT 'part #JP
2213 LOCATE 27,24:RESTORE 2409:READ GP$:PRINT GP$;
2214 GP$=INKEY$:IF GP$="" THEN 2214:ELSEPRINT:PRINT
2215 IF GP$="y" OR GP$=CHR$(13) THEN 2217 ' <--- copy data.
2216 IF GP$<"n" THEN 2213:ELSE 2204
2217 RC=PR 'copy data
2218 PRINT:PRINT:RESTORE 2413:READ GP$:LOCATE 17,24:PRINTGP$;
2219 LOCATE 43,24:PRINT USING"###";JP;:LINE 24,1
2220 GET #1,RC
2221 IF CVI(CD$)=(-1) THEN 2225
2222 D0$=CD$:D1$=LP$:D2$=DA$:D3$=NW$
2223 LSET F0$=D0$:LSET F1$=D1$:LSET F2$=D2$:LSET F3$=D3$
2224 PUT #3,LOF(3)+1
2225 IF RC<LOF(1) THEN RC=RC+1:GET #1,RC:ON CVI(CD$)+2 GOTO 2225,2204,2222
2226 GOTO 2204
2227 ' Copy ALL of part
2228 RESTORE 2414:LOCATE 17,24:READ GP$:PRINT GP$;:LINE 24,1
2229 FOR RC=1 TO LOF(1)
2230 GET#1,RC:IF CVI(CD$)=(-1) THEN 2234
2231 D0$=CD$:D1$=LP$:D2$=DA$:D3$=NW$
2232 LSET F0$=D0$:LSET F1$=D1$:LSET F2$=D2$:LSET F3$=D3$
2233 PUT#3,LOF(3)+1
2234 NEXT RC
2235 GOTO 2204
2300 '< DISP-ROUT >
2301 IF C1<LCZ THEN C1=LCZ:ELSE IF C1>UCZ THEN C1=UCZ
2302 IF R1<LWZ THEN R1=LWZ:ELSE IF R1>UWZ THEN R1=UWZ
2303 IF C2<LCZ THEN C2=LCZ:ELSE IF C2>UCZ THEN C2=UCZ
2304 IF R2<LWZ THEN R2=LWZ:ELSE IF R2>UWZ THEN R2=UWZ
2305 RETURN
2306 DX=(CO(J)-CO(J+1))*21/64:DY=(RO(J+1)-RO(J))*29/40:RA=.5*SQR(DX*DX+DY*DY)
2307 C4=CO(J)+.5*(CO(J+1)-CO(J)):R4=RO(J)-.5*(RO(J)-RO(J+1))
2308 RETURN

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```

2309 FOR Z=0 TO 1.5708 STEP 5/(6*AA)
2310 DX=RA*COS(Z)*64/21:DY=RB*SIN(Z)*40/29:C1=C4+DX:R1=R4+DY:C2=C4-DX:R2=R4-DY
2311 IF NOT(C1<LCZ OR C1>UCZ OR R1<LWZ OR R1>UWZ) THEN PRESETH(C1,R1)
2312 IF NOT(C1<LCZ OR C1>UCZ OR R2<LWZ OR R2>UWZ) THEN PRESETH(C1,R2)
2313 IF NOT(C2<LCZ OR C2>UCZ OR R1<LWZ OR R1>UWZ) THEN PRESETH(C2,R1)
2314 IF NOT(C2<LCZ OR C2>UCZ OR R2<LWZ OR R2>UWZ) THEN PRESETH(C2,R2)
2315 NEXT:RETURN
2316 FOR Z=0 TO 1.5708 STEP 5/(6*AA)
2317 DX=RA*COS(Z)*64/21:DY=RB*SIN(Z)*40/29:C1=C4+DX:R1=R4+DY:C2=C4-DX:R2=R4-DY
2318 IF NOT(C1<LCZ OR C1>UCZ OR R1<LWZ OR R1>UWZ) THEN PSETH(C1,R1)
2319 IF NOT(C1<LCZ OR C1>UCZ OR R2<LWZ OR R2>UWZ) THEN PSETH(C1,R2)
2320 IF NOT(C2<LCZ OR C2>UCZ OR R1<LWZ OR R1>UWZ) THEN PSETH(C2,R1)
2321 IF NOT(C2<LCZ OR C2>UCZ OR R2<LWZ OR R2>UWZ) THEN PSETH(C2,R2)
2322 NEXT:RETURN
2323 DL=SQR(DX*DX+DY*DY):SZ=DY/DL:CM=DX/DL 'L,ANGLE
2324 IF DX<0 THEN TZ=DY/DX:AB=ABS(ATN(TZ)):ELSE TZ=SGN(DY):AB=1.5708
2325 IF SZ=0 AND CM=0 AND TZ=0 THEN GOTO 2329
2326 IF SZ=0 AND CM<0 AND TZ<0 THEN AB=3.14159-AB:GOTO 2329
2327 IF SZ<0 AND CM<0 AND TZ=0 THEN AB=3.14159+AB:GOTO 2329
2328 IF SZ<0 AND CM>0 AND TZ<0 THEN AB=6.28319-AB:GOTO 2329
2329 RETURN
2330 C1=CO(J):R1=RO(J):C2=CO(J+1):R2=RO(J+1):C3=CO(J+2):R3=RO(J+2)'arc compute
2331 DX=(C1-C2)*21/64:DY=(R2-R1)*29/40:GOSUB 2323:AA=AB:L1=DL
2332 DX=(C3-C2)*21/64:DY=(R2-R3)*29/40:GOSUB 2323
2333 IF AA<AB THEN 2335
2334 DX=C1:C1=C3:C3=DX:DX=R1:R1=R3:R3=DX:DX=AA:AA=AB:AB=DX:DX=L1:L1=DL:DL=DX
2335 AC=ABS(AA-AB):IF AC=3.14159 THEN FG=5:RETURN 'as line
2336 IF AC>3.14159 THEN AB=6.2832-AC:SZ=-1:ELSE AB=AC:SZ=1
2337 L1=.5*L1:DL=.5*DL:AC=ATN((DL-L1*COS(AB))/(L1*SIN(AB))):RA=L1/COS(AC)
2338 AB=AA+SZ*AC:C4=C2+RA*COS(AB)*64/21:R4=R2-RA*SIN(AB)*40/29
2339 DX=(C1-C4)*21/64:DY=(R4-R1)*29/40:GOSUB 2323:AA=AB
2340 DX=(C2-C4)*21/64:DY=(R4-R2)*29/40:GOSUB 2323:AC=AB
2341 DX=(C3-C4)*21/64:DY=(R4-R3)*29/40:GOSUB 2323
2342 IF AA>AB AND AB<AC AND AC<AA THEN AC=AB:AA=AA-AB:GOTO 2346
2343 IF AA<AB AND AB>AC AND AC>AA THEN AC=AA:AA=AB-AA:GOTO 2346
2344 IF AA<AB AND AB>AC AND AC<AA THEN AC=AB:AA=6.2832+AA-AB:GOTO 2346
2345 IF AA<AB AND AB<AC AND AC>AA THEN AC=AB:AA=6.2832+AA-AB:GOTO 2346
2346 RETURN
2347 DX=C4+RA*COS(ZA)*64/21:DY=R4-RA*SIN(ZA)*40/29
2348 NN=NOT(DX<LCZ OR DX>UCZ OR DY<LWZ OR DY>UWZ)
2349 RETURN
2350 GOSUB 2330:IF FG=5 THEN 2362 'cre-a/1
2351 FOR ZA=AC TO AC+AA STEP 5/(6*RA):GOSUB 2347:IF NN THEN PSETH(DX,DY)
2352 NEXT ZA
2353 RETURN
2354 IF K=3 THEN GOSUB 2330:ELSE GOSUB 2306 'cre-c-3/2
2355 RB=RA:AA=RA:GOTO 2316
2356 IF R1=R2 THEN 2358 'cre-1
2357 GOSUB 2301:LINEH(C1,R1)-(C2,R2),PSET:RETURN
2358 IF R1<LWZ OR R1>UWZ THEN RETURN
2359 IF C1>C2 THEN SP=-2:ELSE SP=2
2360 FOR ZI=C1 TO C2 STEP SP:IF NOT(ZI<LCZ OR ZI>UCZ) THEN PSETH(ZI,R1)
2361 NEXT:RETURN

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2362 IF NOT(K=2 AND FGX=1) THEN 2365 'cre-l/p/r
2363 C1=CO(J):R1=RO(J):GOSUB2364:C1=CO(J+1):R1=RO(J+1):GOSUB2364:RETURN'cre-r
2364 C2=CO(J):R2=RO(J+1):GOSUB2356:C2=CO(J+1):R2=RO(J):GOSUB2356:RETURN'cre-r
2365 FOR ZA=JTOK-1:C1=CO(ZA):R1=RO(ZA):C2=CO(ZA+1):R2=RO(ZA+1):GOSUB2356:NEXT
2366 IF FGX<>5 THEN C1=CO(J):R1=RO(J):C2=CO(K):R2=RO(K):GOSUB2356 'cre-p
2367 RETURN
2368 DX=(CO(J)-CO(J+1))*21/64:DY=(RO(J+1)-RO(J))*29/40:GOSUB 2323
2369 IF AB>=3.14159 THEN AB=AB-3.14159:SWAP CO(J),CO(J+1):SWAP RO(J),RO(J+1)
2370 RETURN
2371 J=1:GOSUB2368:RA=.5*DL:AL=AB:J=3:GOSUB2368:RB=.5*DL 'cre-e
2372 IF AL>AB THEN SWAP AL,AB:SWAP RA,RB:SWAP CO(1),CO(3):SWAP RO(1),RO(3):SWAP CO(2),CO(4):SWAP RO(2),RO(4)
2373 IF RA<RB THEN AA=RB:ELSE AA=RA
2374 C2=COS(AB):R2=SIN(AB):C4=CO(1)+.5*(CO(2)-CO(1)):R4=RO(1)-.5*(RO(1)-RO(2)):RETURN
2375 CZ=COS(ZZ):SZ=SIN(ZZ):DX=(RA*C2*CZ-RB*R2*SZ)*64/21:DY=(RA*R2*CZ+RB*C2*SZ)*40/29
2376 C1=C4+DX:R1=R4+DY:NN=NOT(C1<LC% OR C1>UC% OR R1<LW% OR R1>UW%):RETURN
2377 GOSUB 2371 'cre-e
2378 IF AL=0 OR AL=3.14159 THEN 2316
2379 FOR ZZ=1E-04 TO 6.2832 STEP 5/(6*AA):GOSUB 2375 'inclined
2380 IF NN THEN PSETH(C1,R1)
2381 NEXT
2382 RETURN
2401 DATA "Do you want drive 1 for MASTER disk? (y/n) : "
2402 DATA "<----- Remove PC disk from drive 1 ----->"
2403 DATA "<----- Insert MASTER disk in drive 1 ----->"
2404 DATA "<----- Insert DATA disk in drive 2 ----->"
2405 DATA "Enter name of MASTER picture : "
2406 DATA "Re-enter for invalid name : "
2407 DATA "Re-enter for undefined name : "
2408 DATA "<----- Pattern displaying ----->"
2409 DATA "Is this correct? (y/n) : "
2410 DATA "Re-enter for duplicated name : "
2411 DATA "Enter part no. of MASTER picture (0-###) : "
2412 DATA "<----- Master picture / part ##### ----->"
2413 DATA "<----- Duplicating part # ----->"
2414 DATA "<----- Duplicating all parts ----->"
2415 DATA "<----- Table Updating ----->"
2416 DATA "Do you wish to do again? (y/n) : "
2417 DATA "<----- Remove MASTER & DATA disk ----->"
2418 DATA "<----- Insert PC disk in drive 1 ----->"
2419 DATA "Press the RETURN key to return to program menu "
2420 DATA "abcdefghijklmnopqrstuvwxyz ","0123456789"

```



3 ' DISPLAY THE SELECTED PICTURE & TEXT.

```

3000 '< MAIN-ROUT >
3001 CLEAR 500
3002 ON ERROR GOTO 3222
3003 WIDTH 80,25:DIM CO(99),RO(99):LCZ=5:UCZ=635:LWZ=2:UWZ=195
3004 SET@0:COLOR 6:PRINTCHR$(12):IF POINTH(16,8)=0 THEN ERASE@:LINEH(16,8)-(632,172),PSET,B
3005 COLOR4:PRINTCHR$(12):OPEN "rmd.scr" FOR INPUT AS#4:LOCATE 0,8
3006 FOR VB=0TO6:LINEINPUT #4,A$:LOCATE 23,CSRLIN:PRINTA$:NEXT:CLOSE 4:SET@1
3007 CONSOLE 24,1:LOCATE 0,24:COLOR 5
3008 REMOVE2
3009 LOCATE18,24:RESTORE 3901:READ P$:PRINT P$;:LINE 24,1
3010 P$=INKEY$:IF LEN(P$)=0 THEN 3010:ELSE PRINT:PRINT
3011 IF P$=CHR$(13) OR P$="y" THEN MOUNT 2:GT$="2:nn.tab":ELSE 3009
3012 LOCATE29,24:RESTORE 3902:READ GP$:PRINTGP$;:LINEINPUT PO$:PRINT
3013 GP$="ptqPTQ":POZ=INSTR(GP$,PO$):IFPOZ=0 THEN 3012 '<--check.
3014 POZ=(POZ MOD 3)+1
3015 ON POZ GOSUB 3017,3202,3202 'q,p,t
3016 PRINT:PRINT: GOTO 3012
3017 RESTORE 3903:LOCATE 16,24:READ GP$:PRINT GP$;:LINE 24,1
3018 GP$=INKEY$:IF GP$="" THEN 3018:ELSE PRINT:PRINT
3019 LOAD"PC",R
3020 END
3100 '< DISP-ROUT >
3101 ' DISP-T-ROUT
3102 CLOSE 1:OPEN "2:"+P$+".tex" FOR INPUT AS #1:LOCATE 0,0
3103 FOR VB=0TO23:LINEINPUT #1,A$:PRINT MID$(A$,2,79);:NEXT
3104 CLOSE 1:LOCATE 0,24
3105 RETURN
3106 END
3107 ' DISP-S-ROUT
3108 RESTORE 3907:READ GP$:PN=0
3109 OPEN "2:"+P$+".pic" AS #1:FIELD #1,2 AS CD$,2 AS LP$,248 AS DA$,4 AS NW$
3110 ERASE@:IF LOF(1)=0 THEN 3125
3111 FOR GAZ=1 TO LOF(1):GET#1,GAZ:ON CVI(CD$)+2 GOTO 3123,3201,3112
3112 GTZ=CVI(LP$):IF GTZ=0 THEN 3123
3113 CC=CVI(LEFT$(NW$,2)):RR=CVI(RIGHT$(NW$,2)):GOZ=1
3114 FOR GBZ=1TOGTZ
3115 G1Z=CVI(MID$(DA$,GOZ,2)):GPZ=VAL(RIGHT$(STR$(G1Z),2)):GOZ=GOZ+2
3116 IF G1Z<1 THEN GOZ=GOZ+4*GPZ:GOTO 3115
3117 FOR GNZ=1TOGPZ:CD(GNZ)=CVI(MID$(DA$,GOZ,2))+CC
3118 RO(GNZ)=CVI(MID$(DA$,GOZ+2,2))+RR:GOZ=GOZ+4
3119 NEXT GNZ
3120 J=1:K=GPZ:FGZ=INT(G1Z/1000)
3121 ON FGZ GOSUB 3362,3350,3354,3377,3365 'p,a,c,e,i
3122 NEXT GBZ
3123 NEXT GAZ
3124 CLOSE 1
3125 RETURN

```

```

3200 '< SRCH-ROUT >
3201 LOCATE 17,24:PRINTGP$;:PN=PN+1:LOCATE 42,24:PRINT USING"###";PN;:GOTO 3112
3202 IF POZ=2 THEN TF=0:GT$="2:nm.tab":ELSE TF=1:GT$=TX.TAB"
3203 IF TF=0 THEN RESTORE 3904:ELSE RESTORE 3908
3204 LOCATE 26,24:READ GP$:PRINT GP$;
3205 LINEINPUT P$:PRINT :PRINT:IF LEN(P$)=0THEN3214      '<--- picture name.
3206 RESTORE 3910:READ GP$,GN$
3207 G1Z=0:G2Z=INSTR(GP$,LEFT$(P$,1)):IF G2Z=0 THEN 3214
3208 IF LEN(P$)=1 THEN 3215
3209 FOR G3Z=2 TO LEN(P$)
3210 GW$=MID$(P$,G3Z,1):G2Z=0:G2Z=INSTR(GP$,GW$):IF G2Z<>0 THEN 3212
3211 G2Z=0:G2Z=INSTR(GN$,GW$):IFG2Z=0THEN 3214
3212 NEXT
3213 GOTO 3215
3214 LOCATE23,24:RESTORE 3905:READ GP$:PRINT GP$;:GOTO3205 '<---Invalid Re-enter.
3215 OPEN GT$ FOR INPUT AS#2
3216 IF EOF(2) THEN CLOSE 2:GOTO 3218      'undefined.
3217 LINEINPUT#2,GN$:IF P$<>GN$ THEN 3216:ELSE CLOSE 2:GOTO 3220
3218 LOCATE 21,24:RESTORE 3906:READ GP$:PRINT GP$;
3219 LINEINPUT GP$:PRINT:IF LEN(GP$)=0 OR GP$="n"THEN 3221:ELSEP$=GP$:GOTO 3206
3220 COLOR 6: PRINT CHR$(12):COLOR 5:IF TF=0 THEN GOSUB 3107:ELSE GOSUB 3100
3221 RETURN
3222 '< ERROR SKIP >
3223 IF ERR=56 AND ERL=3005 THEN REMOVE1:MOUNT1:GOTO 3005
3224 STOP
3300 ' CRET-S-ROUT
3301 IF C1<LCZ THEN C1=LCZ:ELSE IF C1>UCZ THEN C1=UCZ
3302 IF R1<LWZ THEN R1=LWZ:ELSE IF R1>UWZ THEN R1=UWZ
3303 IF C2<LCZ THEN C2=LCZ:ELSE IF C2>UCZ THEN C2=UCZ
3304 IF R2<LWZ THEN R2=LWZ:ELSE IF R2>UWZ THEN R2=UWZ
3305 RETURN
3306 DX=(CO(J)-CO(J+1))*21/64:DY=(RO(J+1)-RO(J))*29/40:RA=.5*SQR(DX*DX+DY*DY)
3307 C4=CO(J)+.5*(CO(J+1)-CO(J)):R4=RO(J)-.5*(RO(J)-RO(J+1))
3308 RETURN
3309 FOR Z=0 TO 1.5708 STEP 5/(6*AA)
3310 DX=RA*COS(Z)*64/21:DY=RB*SIN(Z)*40/29:C1=C4+DX:R1=R4+DY:C2=C4-DX:R2=R4-DY
3311 IF NOT(C1<LCZ OR C1>UCZ OR R1<LWZ OR R1>UWZ)THEN PRESETH(C1,R1)
3312 IF NOT(C1<LCZ OR C1>UCZ OR R2<LWZ OR R2>UWZ)THEN PRESETH(C1,R2)
3313 IF NOT(C2<LCZ OR C2>UCZ OR R1<LWZ OR R1>UWZ)THEN PRESETH(C2,R1)
3314 IF NOT(C2<LCZ OR C2>UCZ OR R2<LWZ OR R2>UWZ)THEN PRESETH(C2,R2)
3315 NEXT:RETURN
3316 FOR Z=0 TO 1.5708 STEP 5/(6*AA)
3317 DX=RA*COS(Z)*64/21:DY=RB*SIN(Z)*40/29:C1=C4+DX:R1=R4+DY:C2=C4-DX:R2=R4-DY
3318 IF NOT(C1<LCZ OR C1>UCZ OR R1<LWZ OR R1>UWZ)THEN PSETH(C1,R1)
3319 IF NOT(C1<LCZ OR C1>UCZ OR R2<LWZ OR R2>UWZ)THEN PSETH(C1,R2)
3320 IF NOT(C2<LCZ OR C2>UCZ OR R1<LWZ OR R1>UWZ)THEN PSETH(C2,R1)
3321 IF NOT(C2<LCZ OR C2>UCZ OR R2<LWZ OR R2>UWZ)THEN PSETH(C2,R2)
3322 NEXT:RETURN
3323 DL=SQR(DX*DX+DY*DY):SZ=DY/DL:CM=DX/DL 'L,ANGLE
3324 IF DX<>0! THEN TZ=DY/DX:AB=ABS(ATN(TZ)):ELSE TZ=SGN(DY):AB=1.5708
3325 IF SZ=0 AND CM=0 AND TZ=0 THEN GOTO 3329

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3326 IF SZ>=0 AND CM<=0 AND TZ<=0 THEN AB=3.14159-AB:GOTO 3329
3327 IF SZ<=0 AND CM<=0 AND TZ>=0 THEN AB=3.14159+AB:GOTO 3329
3328 IF SZ<=0 AND CM>=0 AND TZ<=0 THEN AB=6.28319-AB:GOTO 3329
3329 RETURN
3330 C1=CO(J):R1=RO(J):C2=CO(J+1):R2=RO(J+1):C3=CO(J+2):R3=RO(J+2)'arc compute
3331 DX=(C1-C2)*21/64:DY=(R2-R1)*29/40:GOSUB 3323:AA=AB:L1=DL
3332 DX=(C3-C2)*21/64:DY=(R3-R2)*29/40:GOSUB 3323
3333 IF AA<=AB THEN 3335
3334 DX=C1:C1=C3:C3=DX:DX=R1:R1=R3:R3=DX:DX=AA:AA=AB:AB=DX:DX=L1:L1=DL:DL=DX
3335 AC=ABS(AA-AB):IF AC=3.14159 THEN FG=5:RETURN 'as line
3336 IF AC>3.14159 THEN AB=6.2832-AC:SZ=-1:ELSE AB=AC:SZ=1
3337 L1=.5*L1:DL=.5*DL:AC=ATN((DL-L1*CO(SAB))/(L1*SIN(SAB))):RA=L1/CO(SAC)
3338 AB=AA+SZ*AC:C4=C2+RA*CO(SAB)*64/21:R4=R2-RA*SIN(SAB)*40/29
3339 DX=(C1-C4)*21/64:DY=(R4-R1)*29/40:GOSUB 3323:AA=AB
3340 DX=(C2-C4)*21/64:DY=(R4-R2)*29/40:GOSUB 3323:AC=AB
3341 DX=(C3-C4)*21/64:DY=(R4-R3)*29/40:GOSUB 3323
3342 IF AA>AB AND AB<AC AND AC<AA THEN AC=AB:AA=AA-AB:GOTO 3346
3343 IF AA<AB AND AB>AC AND AC>AA THEN AC=AA:AA=AB-AA:GOTO 3346
3344 IF AA<AB AND AB>AC AND AC<AA THEN AC=AB:AA=6.2832+AA-AB:GOTO 3346
3345 IF AA<AB AND AB<AC AND AC>AA THEN AC=AB:AA=6.2832+AA-AB:GOTO 3346
3346 RETURN
3347 DX=C4+RA*CO(SZA)*64/21:DY=R4-RA*SIN(SZA)*40/29
3348 NN=NOT(DX<LCZ OR DX>UCZ OR DY<LWZ OR DY>UWZ)
3349 RETURN
3350 GOSUB 3330:IF FG=5 THEN 3362 'cre-a/1
3351 FOR ZA=AC TO AC+AA STEP 5/(6*RA):GOSUB 3347:IF NN THEN PSETH(DX,DY)
3352 NEXT ZA
3353 RETURN
3354 IF K=3 THEN GOSUB 3330:ELSE GOSUB 3306 'cre-c-3/2
3355 RB=RA:AA=RA:GOTO 3316
3356 IF R1=R2 THEN 3358 'cre-1
3357 GOSUB 3301:LINEH(C1,R1)-(C2,R2),PSET:RETURN
3358 IF R1<LWZ OR R1>UWZ THEN RETURN
3359 IF C1>C2 THEN SP=-2:ELSE SP=2
3360 FOR ZI=C1 TO C2 STEP SP:IF NOT(ZI<LCZ OR ZI>UCZ) THEN PSETH(ZI,R1)
3361 NEXT ZI:RETURN
3362 IF NOT(K=2 AND FG=1) THEN 3365 'cre-1/p/r
3363 C1=CO(J):R1=RO(J):GOSUB 3364:C1=CO(J+1):R1=RO(J+1):GOSUB 3364:RETURN 'cre-r
3364 C2=CO(J):R2=RO(J+1):GOSUB 3356:C2=CO(J+1):R2=RO(J):GOSUB 3356:RETURN 'cre-r
3365 FOR ZA=J TO K-1:C1=CO(ZA):R1=RO(ZA):C2=CO(ZA+1):R2=RO(ZA+1):GOSUB 3356:NEXT
3366 IF FG<>5 THEN C1=CO(J):R1=RO(J):C2=CO(K):R2=RO(K):GOSUB 3356 'cre-p
3367 RETURN
3368 DX=(CO(J)-CO(J+1))*21/64:DY=(RO(J+1)-RO(J))*29/40:GOSUB 3323
3369 IF AB>=3.14159 THEN AB=AB-3.14159:SWAP CO(J),CO(J+1):SWAP RO(J),RO(J+1)
3370 RETURN
3371 J=1:GOSUB 3368:RA=.5*DL:AL=AB:J=3:GOSUB 3368:RB=.5*DL 'cre-e
3372 IF AL>AB THEN SWAP AL,AB:SWAP RA,RB:SWAP CO(1),CO(3):SWAP RO(1),RO(3):SWAP CO(2),CO(4):SWAP RO(2),RO(4)
3373 IF RA<RB THEN AA=RB:ELSE AA=RA
3374 C2=CO(SAB):R2=SIN(SAB):C4=CO(1)+.5*(CO(2)-CO(1)):R4=RO(1)-.5*(RO(1)-RO(2)):RETURN
3375 CZ=CO(SZZ):SZ=SIN(SZZ):DX=(RA+C2*CZ-RB*R2*SZ)*64/21:DY=(RA*R2*CZ+RB*C2*SZ)*40/29
3376 C1=C4+DX:R1=R4+DY:NN=NOT(C1<LCZ OR C1>UCZ OR R1<LWZ OR R1>UWZ):RETURN
3377 GOSUB 3371 'cre-e
3378 IF AL=0 OR AL=3.14159 THEN 3316

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3379 FOR ZZ=1E-04 TO 6.2832 STEP 5/(6*AA):GOSUB 3375 'inclined
3380 IF NN THEN PSET(C1,R1)
3381 NEXT
3382 RETURN
3901 DATA "<--- Insert DATA disk in drive 2 --->"
3902 DATA "Select (p,t,q) : "
3903 DATA "Press the RETURN key to return to program menu "
3904 DATA "Enter picture-name : "
3905 DATA "Re-enter for invalid name : "
3906 DATA "Re-enter for undefined name : "
3907 DATA "<----- Display pattern ### ----->"
3908 DATA "Enter text-name : "
3909 DATA "<----- Text Displaying for ----->"
3910 DATA " abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNopqrstuvwxyz"
3911 DATA "0123456789##!%&'"
```



4 ' MODIFY THE CREATED PATTERNS.

```

4000 '< MAIN-ROUT >
4001 CLEAR 2000
4002 ON ERROR GOTO 4040
4003 DIM CO(99),RO(99):LCZ=5:UCZ=635:LWZ=2:UWZ=195:COLOR3:PRINT CHR$(12)
4004 SET@0:IF POINTH(16,8)=0 THEN ERASE@:LINEH(16,8)-(623,172),PSET,B
4005 COLOR6:PRINTCHR$(12):OPEN"mmd.scr"FOR INPUT AS#4:LOCATE0,8
4006 FORVB=0TO6:LINEINPUT #4,A$:LOCATE23,CSRLIN:PRINTA$:NEXT:CLOSE4:SET@1
4007 COLOR4:REMOVE2
4008 LOCATE18,24:RESTORE 4901:READ P$:PRINT P$;:LINE 24,1
4009 P$=INKEY$:IF LEN(P$)=0 THEN 4009:ELSE PRINT:PRINT
4010 IF P$=CHR$(13) OR P$="y" THEN MOUNT2:SET2,"":GT$="2:nm.tab":ELSE 4008
4011 LOCATE 26,24:RESTORE 4902:READ GP$:PRINT GP$;
4012 LINEINPUT P$:PRINT:PRINT:IFLEN(P$)=0THEN4021 'p-name
4013 RESTORE 4918:READ GP$,GN$
4014 G1Z=0:G2Z=INSTR(GP$,LEFT$(P$,1)):IF G2Z=0 THEN 4021
4015 IF LEN(P$)=1 THEN 4022
4016 FOR G3Z=2 TO LEN(P$)
4017 GW$=MID$(P$,G3Z,1):G2Z=0:G2Z=INSTR(GP$,GW$):IF G2Z<>0 THEN 4019
4018 G2Z=0:G2Z=INSTR(GN$,GW$):IFG2Z=0THEN 4021
4019 NEXT
4020 GOTO 4022
4021 LOCATE23,24:RESTORE 4903:READ GP$:PRINT GP$;:GOTO4012 'Invalid
4022 OPEN GT$ FOR INPUT AS#2
4023 IF EOF(2) THEN CLOSE 2:GOTO4025 'undefined.
4024 LINEINPUT#2,GN$:IF P$<>GN$ THEN 4023:ELSE CLOSE 2:GOTO 4027
4025 LOCATE 21,24:RESTORE 4904:READ GP$:PRINT GP$;
4026 LINEINPUT GP$:PRINT:IF LEN(GP$)=0 OR GP$="n"THEN 4027:ELSEP$=GP$:GOTO 4013
4027 COLOR 6: PRINT CHR$(12)
4028 LOCATE23,24:RESTORE4905:READGP$:PRINTGP$;:LINE24,1:GOSUB4200:PRINT:PRINT
4029 GOSUB4051:IF G4Z<>1 THEN 4011
4030 CLOSE1:OPEN"2:"+P$+".pic"AS 1:FIELD#1,2AS CD$,2AS LP$,248AS DA$,4AS NW$
4031 C=319:R=99:COLOR6:PRINTCHR$(12)
4032 LOCATE29,24:RESTORE 4907:READ GP$:PRINTGP$;:LINEINPUT P0$:PRINT
4033 IFLEN(P0$)=0THEN PRINT:PRINT:GOTO 4032:ELSE P0$=LEFT$(P0$,1)
4034 GP$="aeqAEQ":POZ=INSTR(GP$,P0$):IFPOZ=0 THEN 4032 '<--check.
4035 POZ=(POZ MOD3)+1:ON POZ GOSUB 4037,4300,4299 'q,a,e
4036 X=99:PRINT:PRINT:GOTO4032
4037 LOCATE16,24:RESTORE4908:READP$:PRINTP$;:LINE24,1 'quit
4038 P$=INKEY$:IFP$=CHR$(13)THEN LOAD"PC",R:ELSE 4038
4039 '*** ERROR SKIP ***
4040 CONSOLE0,25,0:PRINTCHR$(12);"error in line";ERL
4041 PRINT "error code ";ERR:PRINT:PRINT:END
4042 RESTORE 4914:GOTO 4048
4043 RESTORE 4916:GOTO 4048
4044 RESTORE 4913:GOTO 4048
4045 RESTORE 4915:GOTO 4048
4046 RESTORE 4917:GOTO 4048
4047 RESTORE 4912:GOTO 4048
4048 PRINT:PRINT:READ GP$:LOCATE 18,24:PRINT GP$;
4049 LOCATE 44,24:PRINT USING"###";JP;:PRINT"/";:PRINTUSING"###";JK;:LINE24,1
4050 RETURN

```



```

4051 PRINT:PRINT:RESTORE4906:READ GP$:LOCATE20,24:PRINTGP$;
4052 GP$=INKEY$:IF GP$=""THEN4052:ELSE PRINT:PRINT
4053 IF GP$="y" OR GP$=CHR$(13)THEN 64%=1:GOTO 4055
4054 IF GP$("<"n" THEN 4051:ELSE 64%=0
4055 RETURN
4056 GK%=97:X=99 'move a part
4057 IF GK%<99 THEN GOSUB 4446:GOTO 4057 'destination
4058 CX=CD(99)-CD(98):RY=RD(99)-RD(98)
4059 RC=PR:BF$="" 'erase a part
4060 GET#1,RC:NS=CVI(LP$):CCX=CVI(LEFT$(NW$,2)):RRZ=CVI(RIGHT$(NW$,2))
4061 IF NS=0 THEN 4074:ELSE BF$=DA$:MB=1
4062 FOR GS=1 TO NS
4063 FT=CVI(MID$(BF$,MB,2))
4064 FGZ=ABS(INT(FT/1000)):NP=VAL(RIGHT$(STR$(FT),2)):MB=MB+2
4065 IF FT<0 THEN MB=MB+4*NP:GOTO 4063
4066 FOR NNZ=1 TO NP:CD(NNZ)=CVI(MID$(BF$,MB,2))+CCX
4067 RD(NNZ)=CVI(MID$(BF$,MB+2,2))+RRZ :MB=MB+4
4068 NEXT
4069 J=1:K=NP:ON FGZ GOSUB 4413,4387,4393,4434,4416 'era-p,a,c,e,l
4070 IF MV=0 THEN 4073 'mv:move flag(0=no;1=yes)
4071 FOR NNZ=1 TO NP:CD(NNZ)=CD(NNZ)+CX:RD(NNZ)=RD(NNZ)+RY:NEXT
4072 J=1:K=NP:ON FGZ GOSUB 4401,4383,4391,4428,4404 'cre-p,a,c,e,l
4073 NEXT
4074 IF RC<LDF(1) THEN RC=RC+1:GET #1,RC:SC=CVI(CD$):ON(SC+2)GOTO4074,4075,4060
4075 GOSUB 4051:IF 64%=1 THEN 4095
4076 GOSUB 4047 're-cre
4077 RC=PR:BF$="" :NP=0
4078 GET#1,RC:NS=CVI(LP$):CCX=CVI(LEFT$(NW$,2)):RRZ=CVI(RIGHT$(NW$,2))
4079 IF NS=0 THEN 4093:ELSE BF$=DA$:MB=1
4080 FOR GS=1 TO NS
4081 FT=CVI(MID$(BF$,MB,2))
4082 FGZ=ABS(INT(FT/1000)):NP=VAL(RIGHT$(STR$(FT),2)):MB=MB+2
4083 IF FT<0 THEN MB=MB+4*NP:GOTO 4081
4084 IF MV=1 THEN CX=CD(99)-CD(98):RY=RD(99)-RD(98)
4085 FOR NNZ=1 TO NP:CD(NNZ)=CVI(MID$(BF$,MB,2))+CCX+CX
4086 RD(NNZ)=CVI(MID$(BF$,MB+2,2))+RRZ+RY
4087 MB=MB+4 :NEXT
4088 IF MV=0 THEN4091
4089 J=1:K=NP:ON FGZ GOSUB 4413,4387,4393,4434,4416 'era-p,a,c,e,l
4090 FOR NNZ=1 TO NP:CD(NNZ)=CD(NNZ)-CX:RD(NNZ)=RD(NNZ)-RY:NEXT
4091 J=1:K=NP:ON FGZ GOSUB 4401,4383,4391,4428,4404 'cre-p,a,c,e,l
4092 NEXT GS
4093 IF RC<LDF(1) THEN RC=RC+1:GET#1,RC:SC=CVI(CD$):ON(SC+2)GOTO 4093,4094,4078
4094 RETURN
4095 RC=PR:BF$="" :NP=0 'data update
4096 GET#1,RC:NS=CVI(LP$):CCX=CVI(LEFT$(NW$,2)):RRZ=CVI(RIGHT$(NW$,2))
4097 IF NS=0 THEN 4112:ELSE BF$=DA$:MB=1
4098 FOR GS=1 TO NS
4099 FT=CVI(MID$(BF$,MB,2))
4100 NP=VAL(RIGHT$(STR$(FT),2)):MB=MB+2

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4101 IF FT<0 THEN MB=MB+4*NP:GOTO 4099
4102 IF MV=0 THEN MID$(BF$,MB-2,2)=MKI$(-FT):MB=MB+4*NP:GOTO 4108
4103 CX=CD(99)-CD(98):RY=RO(99)-RO(98)
4104 FOR NNZ=1 TO NP:CD(NNZ)=CVI(MID$(BF$,MB,2))+CCZ+CX
4105 RO(NNZ)=CVI(MID$(BF$,MB+2,2))+RRZ+RY
4106 MID$(BF$,MB,2)=MKI$(CD(NNZ)):MID$(BF$,MB+2,2)=MKI$(RO(NNZ))
4107 MB=MB+4 :NEXT
4108 NEXT GS
4109 LSET NW$=MKI$(0)+MKI$(0):LSET DA$=BF$
4110 IF MV=0 AND ES=1 THEN LSET CD$=MKI$(-1)
4111 PUT#1,RC:BF$=""
4112 IF RC<LOF(1) THEN RC=RC+1:GET#1,RC:SC=CVI(CD$):ON(SC+2)GOTO4112,4113,4096
4113 RETURN
4200 '< SRCH-ROUT >
4201 CLOSE1:OPEN"2:"+P$+".pic"AS 1:FIELD#1,2AS CD$,2AS LP$,248AS DA$,4AS NW$
4202 ERASE2:IF LOF(1)=0 THEN 4216
4203 FOR GAZ=1 TO LOF(1):GET#1,GAZ:GSZ=CVI(CD$):IF GSZ=(-1)THEN 4215
4204 GTZ=CVI(LP$):IF GTZ=0 THEN 4215
4205 CC=CVI(LEFT$(NW$,2)):RR=CVI(RIGHT$(NW$,2)):GOZ=1
4206 FOR GBZ=1TOGTZ:G1Z=CVI(MID$(DA$,GOZ,2)):GPZ=VAL(RIGHT$(STR$(G1Z),3))
4207 GOZ=GOZ+2
4208 IF G1Z<1000 THEN GOZ=GOZ+4*GPZ :GOTO 4214
4209 FOR GNZ=1TOGPZ:CO(GNZ)=CVI(MID$(DA$,GOZ,2))+CC
4210 RO(GNZ)=CVI(MID$(DA$,GOZ+2,2))+RR:GOZ=GOZ+4
4211 NEXT GNZ
4212 J=1:K=GPZ:F6Z=INT(G1Z/1000)
4213 ON F6Z GOSUB 4401,4383,4391,4428,4404 'cre-p,a,c,e,l
4214 NEXT GBZ
4215 NEXT GAZ
4216 RETURN
4217 RC=1:PP=0 'part count
4218 GET #1,RC:IF CVI(CD$)=0 THEN PP=PP+1
4219 IF RC<LOF(1) THEN RC=RC+1:GOTO 4218
4220 RETURN
4221 PR=1:KP=0 'part search
4222 GET #1,PR:IF CVI(CD$)=0 THEN KP=KP+1:IF KP=JP THEN RETURN
4223 IF PR<LOF(1) THEN PR=PR+1:GOTO 4222:ELSE STOP
4224 PN=0:KR=PR 'subpart count
4225 GET #1,KR:PN=CVI(LP$)
4226 IF KR<LOF(1) THEN KR=KR+1:GET #1,KR:ON (CVI(CD$)+2) GOTO 4226,4227,4228
4227 RETURN
4228 PN=PN+CVI(LP$):GOTO 4226
4299 MV=0:ES=1:GOTO4301 '< ERAS-ROUT >
4300 MV=1:ES=0 '< MOVE-ROUT >
4301 GOSUB 4217 'part count
4302 PRINT:PRINT:RESTORE 4909:READ GP$:LOCATE 25,24:PRINT GP$;:LINE 24,1
4303 LOCATE 44,24:PRINT USING"###";PP;
4304 LOCATE 50,24:LINEINPUT GP$:IF GP$="" THEN 4302
4305 IF GP$="0" THEN RETURN 'EXIT ==>
4306 JP=VAL(GP$):IF JP=0 OR JP>PP THEN 4302
4307 GOSUB 4221:GOSUB 4224 'part search & subpart count

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4308 PRINT:PRINT:RESTORE 4910:READ GP$:LOCATE 23,24:PRINT GP$;
4309 LOCATE 45,24:PRINT USING"###";PN;
4310 LOCATE 51,24:LINEINPUT GP$:IF GP$<>" "THEN 4312
4311 IF ES=0 THEN MV=1:GOSUB4056:GOTO4302:ELSE MV=0:GOSUB4059:GOTO 4301
4312 JK=VAL(GP$):IF JK=0 OR JK>PN THEN 4308
4313 GOSUB 4043:GOSUB4650
4314 IF ES=1 THEN 4328 :ELSE GK%=97:X=99
4315 IF GK%<99 THEN GOSUB 4446:GOTO4315 'define destination
4316 GOSUB4047:CX=CO(99)-CO(98):RY=RO(99)-RO(98)
4317 ON FG% GOSUB 4413,4387,4393,4434,4416 'era-p,a,c,e,l
4318 FOR NN%=1 TO NP:CO(NN%)=CO(NN%)+CX:RO(NN%)=RO(NN%)+RY:NEXT
4319 J=1:K=NP:ON FG% GOSUB 4401,4383,4391,4428,4404 'cre-p,a,c,e,l
4320 GOSUB 4051 : IF 64%=1 THEN 4324
4321 GOSUB4045:J=1:K=NP:ONFG%GOSUB4413,4387,4393,4434,4416'recre:era-p,a,c,e,l
4322 FOR NN%=1TONP:CO(NN%)=CO(NN%)-CX:RO(NN%)=RO(NN%)-RY:NEXT
4323 J=1:K=NP:ON FG%GOSUB4401,4383,4391,4428,4404:D$="" :GOTO4302' cre-p,a,c,e,l
4324 GOSUB 4042
4325 DD%=MKI$(FG%*1000+NP)
4326 FOR NN%=1 TO NP:DD%=DD%+MKI$(CO(NN%))+MKI$(RO(NN%)):NEXT
4327 MID$(BF$,MD-2,ZL+2)=DD$:LSET DA$=BF$:PUT#1,RC:GOTO 4302
4328 GOSUB 4046
4329 ON FG% GOSUB 4413,4387,4393,4434,4416 'era-p,a,c,e,l
4330 GOSUB 4051:IF 64%=0 THEN GOSUB 4045:GOTO 4323
4331 GOSUB 4042
4332 ZX=NS-1:LSET LP$=MKI$(ZX):IF ZX=0 AND CVI(CO$)<>0 THEN LSET CO$=MKI$(-1)
4333 MID$(BF$,MD-2,2)=MKI$(-(FG%*1000+NP)):LSET DA$=BF$:PUT#1,RC:GOTO 4302
4334 IF C1<LC% THEN C1=LC%:ELSE IF C1>UC% THEN C1=UC%
4335 IF R1<LW% THEN R1=LW%:ELSE IF R1>UW% THEN R1=UW%
4336 IF C2<LC% THEN C2=LC%:ELSE IF C2>UC% THEN C2=UC%
4337 IF R2<LW% THEN R2=LW%:ELSE IF R2>UW% THEN R2=UW%
4338 RETURN
4339 DX=(CO(J)-CO(J+1))*21/64:DY=(RO(J+1)-RO(J))*29/40:RA=.5*SQR(DX*DX+DY*DY)
4340 C4=CO(J)+.5*(CO(J+1)-CO(J)):R4=RO(J)-.5*(RO(J)-RO(J+1))
4341 RETURN
4342 FOR Z=0 TO 1.5708 STEP 5/(6*AA)
4343 DX=RA*COS(Z)*64/21:DY=RB*SIN(Z)*40/29:C1=C4+DX:R1=R4+DY:C2=C4-DX:R2=R4-DY
4344 IF NOT(C1<LC% OR C1>UC% OR R1<LW% OR R1>UW%) THEN PRESETH(C1,R1)
4345 IF NOT(C1<LC% OR C1>UC% OR R2<LW% OR R2>UW%) THEN PRESETH(C1,R2)
4346 IF NOT(C2<LC% OR C2>UC% OR R1<LW% OR R1>UW%) THEN PRESETH(C2,R1)
4347 IF NOT(C2<LC% OR C2>UC% OR R2<LW% OR R2>UW%) THEN PRESETH(C2,R2)
4348 NEXT:RETURN
4349 FOR Z=0 TO 1.5708 STEP 5/(6*AA)
4350 DX=RA*COS(Z)*64/21:DY=RB*SIN(Z)*40/29:C1=C4+DX:R1=R4+DY:C2=C4-DX:R2=R4-DY
4351 IF NOT(C1<LC% OR C1>UC% OR R1<LW% OR R1>UW%) THEN PSETH(C1,R1)
4352 IF NOT(C1<LC% OR C1>UC% OR R2<LW% OR R2>UW%) THEN PSETH(C1,R2)
4353 IF NOT(C2<LC% OR C2>UC% OR R1<LW% OR R1>UW%) THEN PSETH(C2,R1)
4354 IF NOT(C2<LC% OR C2>UC% OR R2<LW% OR R2>UW%) THEN PSETH(C2,R2)
4355 NEXT:RETURN
4356 DL=SQR(DX*DX+DY*DY):SZ=DY/DL:CM=DX/DL 'L,ANGLE
4357 IF DX<>0! THEN TZ=DY/DX:AB=ABS(ATN(TZ)):ELSE TZ=SGN(DY):AB=1.5708
4358 IF SZ=0 AND CM=0 AND TZ=0 THEN GOTO 4362
4359 IF SZ=0 AND CM<0 AND TZ<0 THEN AB=3.14159-AB:GOTO 4362
4360 IF SZ<0 AND CM<0 AND TZ=0 THEN AB=3.14159+AB:GOTO 4362

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4361 IF SZ<0 AND CM)=0 AND TZ<0 THEN AB=6.28319-AB:GOTO 4362
4362 RETURN
4363 C1=CO(J):R1=RO(J):C2=CO(J+1):R2=RO(J+1):C3=CO(J+2):R3=RO(J+2)'arc compute
4364 DX=(C1-C2)*21/64:DY=(R2-R1)*29/40:GOSUB 4356:AA=AB:L1=DL
4365 DX=(C3-C2)*21/64:DY=(R2-R3)*29/40:GOSUB 4356
4366 IF AA<=AB THEN 4368
4367 DX=C1:C1=C3:C3=DX:DX=R1:R1=R3:R3=DX:DX=AA:AA=AB:AB=DX:DX=L1:L1=DL:DL=DX
4368 AC=ABS(AA-AB):IF AC=3.14159 THEN FG=5:RETURN 'as line
4369 IF AC>3.14159 THEN AB=6.2832-AC:SZ=-1:ELSE AB=AC:SZ=1
4370 L1=.5*L1:DL=.5*DL:AC=ATN((DL-L1*COS(AB))/(L1*SIN(AB))):RA=L1/COS(AC)
4371 AB=AA+SZ*AC:C4=C2+RA*COS(AB)*64/21:R4=R2-RA*SIN(AB)*40/29
4372 DX=(C1-C4)*21/64:DY=(R4-R1)*29/40:GOSUB 4356:AA=AB
4373 DX=(C2-C4)*21/64:DY=(R4-R2)*29/40:GOSUB 4356:AC=AB
4374 DX=(C3-C4)*21/64:DY=(R4-R3)*29/40:GOSUB 4356
4375 IF AA>AB AND AB<AC AND AC<AA THEN AC=AB:AA=AA-AB:GOTO 4379
4376 IF AA<AB AND AB>AC AND AC>AA THEN AC=AA:AA=AB-AA:GOTO 4379
4377 IF AA<AB AND AB>AC AND AC<AA THEN AC=AB:AA=6.2832+AA-AB:GOTO 4379
4378 IF AA<AB AND AB<AC AND AC>AA THEN AC=AB:AA=6.2832+AA-AB:GOTO 4379
4379 RETURN
4380 DX=C4+RA*COS(ZA)*64/21:DY=R4-RA*SIN(ZA)*40/29
4381 NN=NOT(DX<LCZ OR DX>UCZ OR DY<LWZ OR DY>UWZ)
4382 RETURN
4383 GOSUB 4363:IF FGZ=5THEN4401 'cre-a/1
4384 FOR ZA=AC TO AC+AA STEP 5/(6*RA):GOSUB 4380:IF NN THEN PSETH(DX,DY)
4385 NEXT ZA
4386 RETURN
4387 GOSUB4363:IF FGZ=5THEN4413 'del-a/1
4388 FOR ZA=AC TO AC+AA STEP 5/(6*RA):GOSUB 4380:IF NN THEN PRESETH(DX,DY)
4389 NEXT ZA
4390 RETURN
4391 IF K=3 THEN GOSUB4363:ELSE GOSUB 4339 'cre-c-3/2
4392 RB=RA:AA=RA:GOTO 4349
4393 IF K=3 THEN GOSUB4363:ELSE GOSUB 4339 'del-c-3/2
4394 RB=RA:AA=RA:GOTO 4342
4395 IF R1=R2 THEN 4397 'cre-1
4396 GOSUB4334:LINEH(C1,R1)-(C2,R2),PSET:RETURN
4397 IF R1<LWZ OR R1>UWZ THEN RETURN
4398 IF C1>C2 THEN SP=-2:ELSE SP=2
4399 FOR ZI=C1TOC2 STEPSP:IF NOT(ZI<LCZORZI>UCZ)THENPSETH(ZI,R1)
4400 NEXT:RETURN
4401 IF NOT(K=2 AND FGZ=1)THEN 4404 'cre-1/p/r
4402 C1=CO(J):R1=RO(J):GOSUB4403:C1=CO(J+1):R1=RO(J+1):GOSUB4403:RETURN'cre-r
4403 C2=CO(J):R2=RO(J+1):GOSUB4395:C2=CO(J+1):R2=RO(J):GOSUB4395:RETURN'cre-r
4404 FOR ZA=JOK-1:C1=CO(ZA):R1=RO(ZA):C2=CO(ZA+1):R2=RO(ZA+1):GOSUB4395:NEXT
4405 IF FGZ<>5THEN C1=CO(J):R1=RO(J):C2=CO(K):R2=RO(K):GOSUB4395 'cre-p
4406 RETURN
4407 IF R1=R2 THEN 4409 'del-1
4408 GOSUB4334:LINEH(C1,R1)-(C2,R2),PRESET:RETURN
4409 IF R1<LWZ OR R1>UWZ THEN RETURN
4410 IF C1>C2 THEN SP=-2:ELSE SP=2
4411 FOR ZI=C1TOC2 STEPSP:IF NOT(ZI<LCZORZI>UCZ)THENPRESETH(ZI,R1)
4412 NEXT:RETURN

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4413 IF NOT(K=2 AND F6X=1) THEN 4416 'del-l/p/r
4414 C1=CO(J):R1=RO(J):GOSUB4415:C1=CO(J+1):R1=RO(J+1):GOSUB4415:RETURN'del-r
4415 C2=CO(J):R2=RO(J+1):GOSUB4407:C2=CO(J+1):R2=RO(J):GOSUB4407:RETURN'del-r
4416 FOR ZA=JDK-1:C1=CO(ZA):R1=RO(ZA):C2=CO(ZA+1):R2=RO(ZA+1):GOSUB4407:NEXT
4417 IF F6X<>5 THEN C1=CO(J):R1=RO(J):C2=CO(K):R2=RO(K):GOSUB 4407 'del-p
4418 RETURN
4419 DX=(CO(J)-CO(J+1))*21/64:DY=(RO(J+1)-RO(J))*29/40:GOSUB 4356
4420 IF AB>=3.14159 THEN AB=AB-3.14159:SWAP CO(J),CO(J+1):SWAP RO(J),RO(J+1)
4421 RETURN
4422 J=1:GOSUB4419:RA=.5*DL:AL=AB:J=3:GOSUB4419:RB=.5*DL 'cre-e
4423 IF AL>AB THEN SWAP AL,AB:SWAP RA, RB:SWAP CO(1),CO(3):SWAP RO(1),RO(3):SWAP CO(2),CO(4):SWAP RO(2),RO(4)
4424 IF RA<RB THEN AA=RB:ELSE AA=RA
4425 C2=COS(AB):R2=SIN(AB):C4=CO(1)+.5*(CO(2)-CO(1)):R4=RO(1)-.5*(RO(1)-RO(2)):RETURN
4426 CZ=COS(ZZ):SZ=SIN(ZZ):DX=(RA*C2*CZ-RB*R2*SZ)*64/21:DY=(RA*R2*CZ+RB*C2*SZ)*40/29
4427 C1=C4+DX:R1=R4+DY:NN=NOT(C1<LCX OR C1>UCX OR R1<LWX OR R1>UWX):RETURN
4428 GOSUB 4422 'cre-e
4429 IF AL=0 OR AL=3.14159 THEN 4349
4430 FOR ZZ=1E-04 TO 6.2832 STEP 5/(6*AA):GOSUB 4426 'inclined
4431 IF NN THEN PSETH(C1,R1)
4432 NEXT
4433 RETURN
4434 GOSUB 4422 'del-e
4435 IF AL=0 OR AL=3.14159 THEN 4342
4436 FOR ZZ=1E-04 TO 6.2832 STEP 5/(6*AA):GOSUB 4426 'inclined
4437 IF NN THEN PREETH(C1,R1)
4438 NEXT
4439 RETURN
4440 RETURN
4441 ' ? for help (a$,zz)
4442 PRINTCHR$(12):SET@G:LOCATE0,0:OPEN A$ FOR INPUT AS #4
4443 FORVB=0TDZZ:LINEINPUT#4,A$:COLORVAL(LEFT$(A$,1)):PRINTMID$(A$,2):NEXT
4444 LOCATE0,24:LINEINPUT#4,A$:PRINT MID$(A$,2):LINE24,1:CLOSE4
4445 A$=INKEY$:IF A$="" THEN 4445:ELSE COLOR7:PRINTCHR$(12):SET@1:RETURN
4446 RESTORE 4911 :COLOR4:READ GP$
4447 GOSUB 4449:GOTO 4531
4448 A$="set.scr":ZZ=21:GOSUB4441:GOTO 4502
4449 PRINT:PRINT
4450 LOCATE18,24:COLOR7:PRINT GP$;:COLOR5:PRINT", C:":PRINTUSING"###";C;
4451 COLOR4:PRINT", R:":PRINTUSING"###";R;:COLOR7:RETURN
4500 '< DEFN-ROUT >
4501 GOSUB 4450
4502 X$=INKEY$:IF X$<>"" THEN IF X$="" THEN 4448:ELSE X=ASC(X$)
4503 IF X>57 THEN 4535:ELSE IF X<28 THEN 4536
4504 IF X<48 THEN 4521
4505 IF (F1 OR F2)=0 THEN PRESETH(C,R)
4506 ON (X-47) GOTO 4507,4513,4514,4515,4516,4533,4517,4518,4519,4520
4507 ZYZ=0
4508 FOR ZZZ=1 TO GKZ
4509 IF C=CO(ZZZ) AND R=RO(ZZZ) THEN 4511
4510 ZYZ=ZZZ+1:CO(ZYZ)=CO(ZZZ):RO(ZYZ)=RO(ZZZ)
4511 NEXT ZZZ
4512 X=0:GKZ=ZZZ:PRESETH(C,R):F1=0:F2=0: GOTO 4535
4513 C=C-2:R=R+1:GOTO 4529
4514 R=R+1:GOTO 4529

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4515 C=C+2:R=R+1:GOTO 4529
4516 C=C-1:GOTO 4529
4517 C=C+1:GOTO 4529
4518 C=C-2:R=R-1:GOTO 4529
4519 R=R-1:GOTO 4529
4520 C=C+2:R=R-1:GOTO 4529
4521 IF X>31 THEN 4535
4522 IF (F1 OR F2)=0 THEN PRESETH(C,R)
4523 ON (X-27) GOTO 4524,4525,4526,4527
4524 C=C+40:GOTO 4528
4525 C=C-40:GOTO 4528
4526 R=R-20:GOTO 4528
4527 R=R+20:GOTO 4528
4528 X=0
4529 IF C<0 THEN C=639 :ELSE IF C>639 THEN C=0
4530 IF R<0 THEN R=199:ELSE IF R>199 THEN R=0
4531 IF POINTH(C,R)=0 THEN PSETH(C,R):F2=0:ELSE F2=1
4532 F1=0:BEEP1:BEEP1:BEEP1:BEEP0:GOTO 4501
4533 IF C=CO(GKX) AND R=RO(GKX) THEN 4501
4534 GKX=GKX+1:F1=1:CO(GKX)=C:RO(GKX)=R
4535 PRESETH(C,R):FOR ZZ=1 TO 50:NEXT:PSETH(C,R):FOR ZZ=1 TO 50:NEXT:GOTO 4501
4536 IF X<>13 THEN 4535
4537 RETURN
4650 ' SRCH-S-ROUT
4651 RC=PR :GS=0
4652 GET #1,RC:NG=CVI(LP$):CCZ=CVI(LEFT$(NW$,2)):RRZ=CVI(RIGHT$(NW$,2))
4653 IF JK>GS+NS THEN RC=RC+1:GS=GS+NS:IF RC>LOF(1) THEN 4665:ELSE 4652
4654 MD=1:BF$=DA$
4655 FT=CVI(MID$(BF$,MD,2)):NP=ABS(FT)-INT(ABS(FT)/1000)*1000:MD=MD+2
4656 IF SGN(FT)=(-1) THEN 4658
4657 GS=GS+1:IF JK=GS THEN 4660 'gen. data.
4658 MD=MD+4*NP:IF MD<=LEN(BF$)-10 THEN 4655
4659 STOP
4660 ZL=4*NP:0$=MID$(BF$,MD,ZL):FGX=INT(FT/1000):MB=1
4661 FOR NNZ=1 TO NP:CO(NNZ)=CVI(MID$(0$,MB,2))+CCZ
4662 RO(NNZ)=CVI(MID$(0$,MB+2,2))+RRZ:MB=MB+4
4663 NEXT
4664 K=NP:GKX=NP
4665 RETURN
4901 DATA "<----- Insert DATA disk in drive 2 ----->"
4902 DATA "Enter picture name : "
4903 DATA "Re-enter for invalid name : "
4904 DATA "Re-enter for undefined name : "
4905 DATA "<----- Pattern displaying ----->"
4906 DATA "Is this correct? (y/n) : "
4907 DATA "Select (a,e,q) : "
4908 DATA "Press the RETURN key to return to program menu "
4909 DATA "Enter part no. (0 -###) : "
4910 DATA "Enter subpart no. (1 -###) : "
4911 DATA "<----- Define the destinations -----> "
4912 DATA "<----- Replacing part ###/### ----->"
4913 DATA "<----- Restoring part ###/### ----->"
4914 DATA "<----- Data updating for part ###/### ----->"

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4915 DATA "<----- Recreating part ###/### ----->"  
4916 DATA "<---- Searching for part ###/### ----->"  
4917 DATA "<----- Erasing for part ###/### ----->"  
4918 DATA " abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ"  
4919 DATA "0123456789\*%!'&:"



## 5 ' TEXT PROCESSING.

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5000 '< MAIN-ROUT >
5001 CLEAR 3000
5002 ON ERROR GOTO 5441
5003 DIM SC$(25):NC=79:NL=24
5004 WIDTH 80,25:CONSOLE,,0,1
5005 COLOR5:PRINTCHR$(12)
5006 SET30:IF POINTH(16,8)=0 THEN ERASE0:LINEH(16,8)-(623,172),PSET,B
5007 COLOR6:PRINTCHR$(12):OPEN"tmd.scr" FOR INPUT AS #4:LOCATE 0,8
5008 FOR VB=0 TO 6:LINEINPUT #4,A#:LOCATE 23,CSRLIN:PRINT A#:NEXT:CLOSE 4
5009 SET31:CONSOLE 24,1:LOCATE 0,24:COLOR 6:REMOVE
5010 COLOR7: LOCATE 29,24:RESTORE 5901:READ GP$:PRINT GP$;
5011 GP$=INKEY$:IF GP$="" THEN 5011:ELSE PRINT:PRINT
5012 RESTORE 5925:READ GW$:PO=INSTR(GW$,GP$):IF PO=0 THEN 5010
5013 ON (PO MOD 5)+1 GOSUB 5015,5101,5401,5103,5102 'q,c,d,e,u
5014 PRINT CHR$(12):GOTO 5010
5015 LOCATE16,24:RESTORE 5902:READ GP$:PRINT GP$;:LINE24,1
5016 P$=INKEY$:IF P$<>CHR$(13) THEN 5016
5017 LOAD"PC",R 'Return to MAIN MENU .
5018 END
5019 ' Format check
5020 RESTORE 5923:READGP$,GN$
5021 G1%=0:G2%=INSTR(GP$,LEFT$(P$,1)):IF G2%=0 THEN 5028
5022 IF LEN(P$)=1 THEN 5027
5023 FOR G3%=2 TO LEN(P$)
5024 GW%=MID$(P$,G3%,1):G2%=0:G2%=INSTR(GP$,GW$):IFG2%<>0THEN5026
5025 G2%=0:G2%=INSTR(GN$,GW$):IFG2%=0THEN5028
5026 NEXT G3%
5027 G1%=1
5028 RETURN
5029 ' Duplicate check
5030 G1%=0:CLOSE 2:OPEN 6T$ FOR INPUT AS#2
5031 IF EOF(2) THEN GOTO 5033
5032 LINEINPUT#2,GN$:IF F$<>GN$ THEN 5031:ELSE G1%=1
5033 CLOSE 2:RETURN
5034 ' CRET-S-ROUT
5035 CN=POS(X):B$=INPUT$(1):IF B$=CHR$(13) THEN 5059
5036 IF ASC(B$)<28 THEN BEEP:LOCATE CN,CSRLIN:GOTO 5035
5037 IF B$<>CHR$(28) THEN 5042
5038 IF CN<NC-1 THEN LOCATE CN+1,CSRLIN:GOTO 5035
5039 CN=0:IF CSRLIN<NL-1 THEN NN=CSRLIN+1:GOTO 5041
5040 NN=0
5041 LOCATE CN,NN : GOTO 5035
5042 IF B$<>CHR$(29) THEN 5046
5043 IF CN<=0 THEN CN=NC : ELSE LOCATE CN-1,CSRLIN:GOTO 5035
5044 IF CSRLIN<=0 THEN NN=NL-1 :ELSE NN=CSRLIN-1
5045 LOCATE CN,NN:GOTO 5035
5046 IF B$<>CHR$(30) THEN 5049
5047 IF CSRLIN<=0 THEN LOCATE CN,NL-1:GOTO 5035
5048 LOCATE CN,CSRLIN-1:GOTO 5035
5049 IF B$<>CHR$(31) THEN 5052
5050 IF CSRLIN=NL-1 THEN LOCATE CN,0:GOTO 5035
5051 LOCATE CN,CSRLIN+1:GOTO 5035
5052 MID$(SC$(CSRLIN),CN+2,1)=B$:PRINT B$;

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5053 IF CN<NC-1 THEN LOCATE CN+1,CSRLIN:GOTO 5057
5054 CN=0:IF CSRLIN<NL-1 THEN NN=CSRLIN:GOTO 5056
5055 NN=0
5056 LOCATE CN,NN
5057 BEEP1:BEEP0
5058 GOTO 5035
5059 FOR FT=0 TO 10:BEEP1:FOR FF=0 TO 10:BEEP1:NEXT:BEEP0:NEXT:8BEEP 'SOUND lite
5060 RETURN
5100 '< CRET-ROUT >
5101 UE=0:GOTO 5105 'create
5102 UE=1:GOTO 5105 'update
5103 UE=2:GOTO 5105 'erase
5104 CLOSE 1:OPEN "2:tx.tab" FOR APPEND AS #1:PRINT #1,P#:CLOSE 1:RETURN
5105 SET#0: REMOVE2:PRINT CHR$(12)
5106 RESTORE 5903:READ GP#:LOCATE 17,24:PRINT GP#:LINE 24,1
5107 GP#=INKEY#:IF GP#="" THEN 5107:ELSE PRINT:PRINT
5108 IF GP#="y" OR GP#=CHR$(13) THEN MOUNT2:GT#="2:tx.tab":ELSE 5106
5109 RESTORE 5904:READ GP#:LOCATE 31,24:PRINT GP#
5110 LINEINPUT P#:PRINT:IF LEN(P#)=0 THEN G1%=0:GOTO 5112
5111 GOSUB 5019 '----- format check.
5112 IF G1%=0 THEN RESTORE 5905:READ GP#:LOCATE 26,24:PRINT GP#:GOTO 5110
5113 GOSUB 5029 '----- name check.
5114 IF G1%=0 THEN ON UE+1 GOTO 5118,5116,5116
5115 ON UE+1 GOTO 5116,5201,5201
5116 IF UE<>0 THEN RESTORE 5915:ELSE RESTORE 5906
5117 READ GP#:LOCATE 24,24:PRINT GP#:GOTO 5110
5118 RESTORE 5907:READ GP#:LOCATE 21,24:PRINT GP#
5119 FOR NN%=0 TO 23:SC$(NN%)="@"+STRING$(80," ")+"@":NEXT
5120 RESTORE 5908:READ GP#:MID$(GP#,24,LEN(P#))=P#:COLOR4:LOCATE 18,24:PRINT GP#
5121 COLOR7:LOCATE 0,0:GOSUB 5057:LOCATE 0,24 'create
5122 PRINT:PRINT:RESTORE 5909:READ GP#:LOCATE 27,24:PRINT GP#
5123 GP#=INKEY#:IF GP#="" THEN 5123:ELSE PRINT:PRINT:PO%=INSTR("nyNY",GP#)
5124 ON (PO%+1) GOTO 5122,5121,5125,5121,5125 '?n,y,N,Y
5125 GOSUB 5220 '----- save data.
5126 GOSUB 5104 '----- add name.
5127 RETURN '----- RETURN to text menu.
5200 '< UPDT-ROUT >
5201 PRINT CHR$(12)
5202 RESTORE 5916:READ GP#:MID$(GP#,21,LEN(P#))=P#:LOCATE 25,24:PRINT GP#:LINE 24,1
5203 LOCATE 0,0:OPEN "2:"+P#+".tex" FOR INPUT AS #1
5204 IF NOT(EOF(1)) THEN LINEINPUT #1,X#: LPRINT MID$(X#,2,79) :GOTO 5204
5205 CLOSE #1:LOCATE 0,24:PRINT:PRINT
5206 RESTORE 5909:READ GP#:COLOR7:LOCATE 27,24:PRINT GP#
5207 GP#=INKEY#:IF GP#="" THEN 5207:ELSE PRINT:PRINT:PO%=INSTR("nyNY",GP#)
5208 IF PO%=0 THEN 5206:ELSE ON (PO% MOD 2)+1 GOTO 5209,5224 '?n,y,N,Y
5209 ON UE GOTO 5210,5300
5210 RESTORE 5921:READ GP#:MID$(GP#,23,LEN(P#))=P#:LOCATE 18,24:PRINT GP#:IX=0
5211 OPEN "2:"+P#+".tex" FOR INPUT AS #1
5212 IF NOT(EOF(1)) THEN LINEINPUT #1,SC$(IX):IX=IX+1:GOTO 5212
5213 CLOSE #1:LOCATE 0,24:PRINT:PRINT
5214 RESTORE 5922:READ GP#:MID$(GP#,19,LEN(P#))=P#
5215 COLOR 6:LOCATE 20,24:PRINT GP#:LOCATE 0,0:GOSUB 5057 'update
5216 LOCATE 0,24:PRINT:PRINT
5217 RESTORE 5909:READ GP#:COLOR7:LOCATE 27,24:PRINT GP#

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```

5218 GP%=INKEY$:IF GP%="" THEN 5218:ELSE PRINT:PRINT:POZ=INSTR("nyNY",GP%)
5219 IF POZ=0 THEN 5217:ELSE ON (POZ MOD 2)+1 GOTO 5220,5214 'n,y,N,Y
5220 RESTORE 5910:READ GP$:MID$(GP$,23,LEN(P$))=P$:COLOR4:LOCATE 23,24:PRINT GP%;
5221 OPEN "2:"+P$+".tex" FOR OUTPUT AS #1
5222 FOR J%=0 TO 23:PRINT #1,SC$(J%):LOCATE0,J%:PRINT SPACE$(80):NEXT
5223 CLOSE #1
5224 RETURN
5300 '< ERAS-ROUT >
5301 LOCATE 35,24:PRINT 'Sure ? (y/n) : ";GP%=INKEY$:IF GP%="" THEN 5301
5302 IF GP%="y" THEN 5304
5303 IF GP%="n" THEN 5313 ELSE 5301
5304 RESTORE 5920:READ GP$:MID$(GP$,19,LEN(P$))=P$:COLOR2:LOCATE 24,24:PRINT GP%;
5305 OPEN GT$ FOR INPUT AS #1
5306 OPEN "2:tx2.tab" FOR OUTPUT AS #2
5307 IF EOF(1) THEN 5310
5308 INPUT #1,TN$:IF TN$<>? THEN PRINT #2,TN$
5309 GOTO 5307
5310 CLOSE 1,2
5311 KILL GT$:KILL "2:"+P$+".tex"
5312 NAME "2:tx2.tab" AS GT$
5313 RETURN '<==== RETURN to text menu.
5400 '< COPY-ROUT >
5401 SET60:LOCATE0,24:PRINT:PRINT:PRINT CHR$(12):RESTORE 5911
5402 READ GP$:LOCATE 17,24:PRINT GP$
5403 GP%=INKEY$:IF GP%="" THEN 5403:ELSE PRINT:PRINT
5404 IF GP%=CHR$(13) OR GP%="y" THEN 5406
5405 IF GP$<>"n" THEN 5401:ELSE GM$="2:tx.tab":GOTO 5411
5406 REMOVE 1:RESTORE 5912:READ GP$:LOCATE 17,24:PRINT GP$;:LINE 24,1
5407 GP%=INKEY$:IF GP$<>CHR$(13) THEN 5407
5408 GM$="1:tx.tab":MOUNT 1
5409 RESTORE 5913:READ GP$:LOCATE 17,24:PRINT GP$;:LINE 24,1
5410 GP%=INKEY$:IF GP$<>CHR$(13) THEN 5410
5411 REMOVE 2:RESTORE 5903:READ GP$:LOCATE 17,24:PRINT GP$;:LINE 24,1
5412 GP%=INKEY$:IF GP$<>CHR$(13) THEN 5412
5413 GD$="2:tx.tab":MOUNT 2
5414 PRINT:PRINT:RESTORE 5914
5415 READ GP$:LOCATE 17,24:PRINT GP$;
5416 LINEINPUT P$:PRINT:PRINT:IF LEN(P$)=0 THEN RETURN
5417 GOSUB 5019:IF G1%=0 THEN RESTORE 5905:GOTO 5415
5418 GT$=GM$:GOSUB 5029:IF G1%=0 THEN RESTORE 5915:GOTO 5415
5419 RESTORE 5916:READ GP$:MID$(GP$,21,LEN(P$))=P$:LOCATE 24,24:PRINT GP%;
5420 LOCATE 0,0:OPEN LEFT$(GM$,2)+P$+".tex" FOR INPUT AS #1:X$=""
5421 IF NOT(EOF(1)) THEN LINEINPUT #1,X$:PRINT MID$(X$,2,79);:GOTO 5421
5422 CLOSE 1:LOCATE0,24:PRINT:PRINT
5423 RESTORE 5909:READ GP$:LOCATE 25,24:PRINT GP$;
5424 GP%=INKEY$:IF GP%="" THEN 5424:ELSE PRINT:PRINT
5425 IF GP%=CHR$(13) OR GP%="y" THEN 5427
5426 IF GP$<>"n" THEN 5423:ELSE 5414
5427 OPEN LEFT$(GM$,2)+P$+".tex" FOR INPUT AS #1
5428 RESTORE 5914:READ GP$:MID$(GP$,15,6)="COPIED":LOCATE 17,24:PRINT GP$;
5429 LINEINPUT GP$:IF GP%="" THEN G1%=0:GOTO 5431
5430 P%=GP$: GOSUB 5019
5431 IF G1%=0 THEN RESTORE 5905:READ GP$:LOCATE 26,24:PRINT GP$;:GOTO 5429
5432 GT$=GD$:GOSUB 5029

```

```
5433 IF 61Z=1 THEN RESTORE 5906:READ GP$:LOCATE 24,24:PRINT GP$;GOTO 5429
5434 LOCATE0,24:PRINT:PRINT
5435 RESTORE 5910:READ GP$:MID$(GP$,23,LEN(P$))=P$:LOCATE 24,24:PRINT GP$;LINE 24,1
5436 CLOSE 2:OPEN "2:"+P$+".tex" FOR OUTPUT AS #2
5437 IF NOT(EOF(1)) THEN LINEINPUT #1,GP$:PRINT #2,GP$:GOTO 5437
5438 CLOSE 1,2
5439 GOTO 5104
5440 RETURN
5441 '< ERROR SKIP >
5442 IF ERR=56 AND ERL=5017 THEN MOUNT1:GOTO 5017
5443 IF ERR=56 AND ERL=5007 THEN MOUNT1:GOTO 5007
5444 STOP
5901 DATA "Select (c,d,e,u,q) : "
5902 DATA "Press the RETURN key to return to program menu "
5903 DATA "<---- Insert DATA disk in drive 2 ---->"
5904 DATA "Enter text-name : "
5905 DATA "Re-enter for invalid name : "
5906 DATA "Re-enter for duplicated name : "
5907 DATA "<--- Buffer Initialization --->"
5908 DATA "<--- Text Creating for ---->"
5909 DATA "Is this correct? (y/n) : "
5910 DATA "<--- Text Storing for ---->"
5911 DATA "Do you want drive 1 for MASTER text? (y/n) : "
5912 DATA "<----- Remove PC disk from drive 1 ----->"
5913 DATA "<----- Insert MASTER disk in drive 1 ----->"
5914 DATA "Enter name of MASTER text : "
5915 DATA "Re-enter for undefined name : "
5916 DATA "<--- Displaying for ---->"
5917 DATA "Enter name of COPIED text : "
5918 DATA "<----- Remove MASTER & DATA disk ----->"
5919 DATA "<----- Insert PC disk in drive 1 ----->"
5920 DATA "<--- Deleting for ---->"
5921 DATA "<--- Text Loading for ---->"
5922 DATA "<--- Updating for ---->"
5923 DATA " abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNopqrstuvwxyz"
5924 DATA "0123456789#%!&*"
5925 DATA "cdeuqCDEUQ"
```



```

Q : QUIT.

7000 '< EXIT-ROUT >
7001 CLEAR 500:ERASE@
7002 COLOR4:PRINTCHR$(12):WIDTH 80,20:LOCATE 28,7:PRINT "Statistic Updating":LINE7,1
7003 OPEN "STST.DAT"AS #1:FIELD #1,60AS A$,30 AS B$:GET#1
7004 F$=B$:E$=STRING$(60,8H20)
7005 FOR IX=0 TO 6
7006 L(IX)=CVI(MID$(A$,IX*3+1,2)):T(IX)=CVI(MID$(A$,IX*3+3+1,2))
7007 TT(IX)=L(IX)+T(IX)
7008 MID$(E$,IX*3+1,3)=MKI$(TT(IX))+!"
7009 MID$(E$,IX*3+3+1,3)=MKI$(0)+!"
7010 NEXT IX
7011 LOCATE 0,10:COLOR7:PRINTTAB(32)"PC  CMD  DMD  RMD  MMD  TMD  INIT"
7012 LOCATE 0,12:COLOR6:PRINT"Last active date C";MID$(B$,29,2);"/";
7013 PRINT MID$(B$,27,2);"/";MID$(B$,25,2);"J";
7014 FOR IX=0 TO 6:PRINT USING "#####";L(IX);:NEXT:PRINT
7015 LOCATE 0,14:COLOR4:PRINT"Today's date C";MID$(B$,19,2);"/";
7016 PRINT MID$(B$,17,2);"/";MID$(B$,15,2);"J";:LOCATE 27,CSRLIN
7017 FOR IX=0 TO 6:PRINT USING " #####";T(IX);:NEXT:PRINT
7018 LOCATE 0,16:COLOR3:PRINT"Total C";MID$(B$,9,2);"/";MID$(B$,7,2);"/";MID$(B$,5,2);"-";
7019 PRINT MID$(B$,19,2);"/";MID$(B$,17,2);"/";MID$(B$,15,2);"J";:LOCATE 27,CSRLIN
7020 FOR IX=0 TO 6:PRINT USING " #####";TT(IX);:NEXT:PRINT
7021 'defusr0=&h124a;x=usr0(0)
7022 MID$(F$,21,10)=MID$(B$,11,10):MID$(F$,1,1)="*"
7023 LSET A$=E$:LSET B$=F$:PUT#1,1:CLOSE1:F$=""
7024 REMOVE 1,2:COLOR 5
7025 LOCATE 17,24:PRINT"<----- Remove PC disk from drive 1 ----->":LINE24,1
7026 F$=INKEY$:IF F$<>CHR$(13) THEN 7026
7027 PRINT CHR$(12):CONSOLE0,25,1,0:WIDTH 40,20:LOCATE 0,0:PRINT"ok":WAIT 0,0

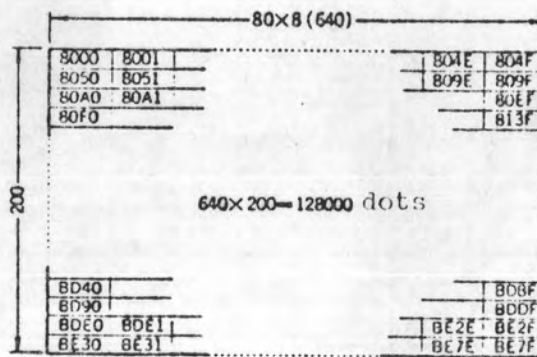
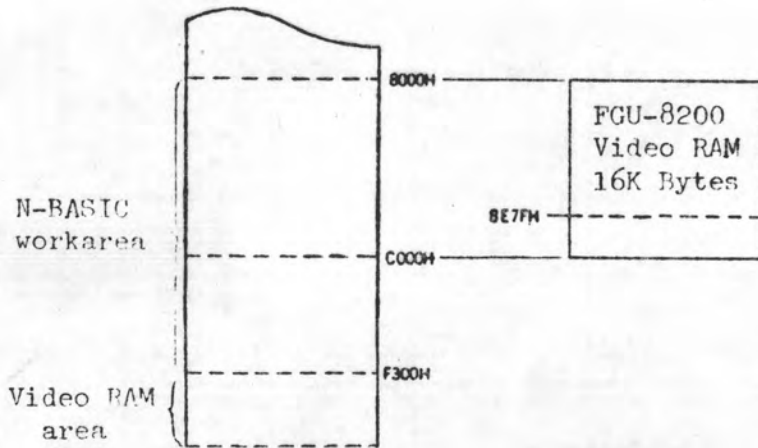
```

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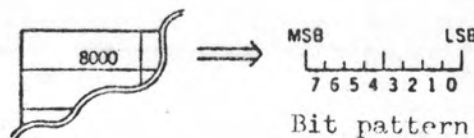


ภาคผนวก ข : คำสั่งต่าง ๆ สำหรับโมดของรูปภาพแบบละเอียดของคอมพิวเตอร์ขนาดเล็ก  
ของ บริษัท NEC รุ่น PC-8001

โมดของรูปภาพแบบละเอียด เป็นการทำงานของหน่วยความจำชั่วคราว (RAM) ซึ่งเรียกว่า FGU-8200 มีขนาดความจุ 16 กิโลไบต์ โดยเริ่มต้นตำแหน่งที่อยู่ (address)  $(8000)_{16}$  จนถึง  $(C000)_{16}$  แต่จะใช้เก็บข้อมูลของหน่วยจอภาพ โดยใช้ตำแหน่งที่อยู่  $(8000)_{16}$  จนถึง  $(BE7F)_{16}$  ทำให้ได้จำนวนจุดบนหน่วยจอภาพทั้งหมด 128,000 จุด



Byte pattern



การทำงานในโหมดของรูปภาพแบบละเอียด คิว FGU-8200 นั้น จะต้อง  
ใช้คำสั่งต่าง ๆ ได้แก่ MONGR SET@ PSETH PRESETH LINEH  
ERASE@ POINTH LPRINT@

1. คำสั่ง MONGR ใช้สำหรับจัดเตรียมพื้นที่ของรูปภาพ (graphic area)  
ซึ่งสามารถระบุชนิดของเครื่องพิมพ์ที่จะใช้พิมพ์รูปภาพได้ด้วย

รูปแบบคำสั่ง MONGR <printer NO.>

print NO.....0 : NEC PC-8023

1 : EPSON MP-80

ตัวอย่าง MONGR 1 (กำหนดเครื่องพิมพ์เป็น EPSON MP-80)

2. คำสั่ง SET@ เป็นคำสั่งสำหรับกำหนดการทำงานของ FGU-8200  
และหน่วยจอภาพ

รูปแบบคำสั่ง SET@ <FGU-SW> [ , <CRT> ]

<FGU-SW>.....0-255

0 : รูปภาพจะไม่ปรากฏบนหน่วยจอภาพ

255 : เช่นเดียวกับ 0 ใช้กับหน่วยจอภาพที่เป็นโหมดขาว-ดำ

อื่นๆ : รูปภาพจะปรากฏบนหน่วยจอภาพ

<CRT>.....0-255

0 : กำหนดจุดบนจอภาพเริ่มต้นเป็นสีดำ

1 : กำหนดจุดบนจอภาพเริ่มต้นเป็นสีขาว

อื่นๆ : การทำงานเช่นเดียวกับ 0

ตัวอย่าง SET@1,1 เป็นการกำหนดให้แสดงรูปภาพโดยกำหนดจุดต่าง ๆ

ของหน่วยจอภาพ เริ่มต้นเป็นสีขาวและรูปภาพจะให้จุดสีดำ

3. คำสั่ง ERASE@ ใช้สำหรับลบข้อมูลในโมดของรูปภาพแบบละเอียดนี้ โดยอาจกำหนดให้ลบด้วยรูปแบบที่ต้องการหรือลบทั้งหมดก็ได้

รูปแบบคำสั่ง ERASE@[<pattern>[,A]]  
 <pattern>.....0-255 (ถ้าไม่กำหนดจะมีค่าเป็น 0)  
 ,A..... สบกลางลักษณะเฉพาะ (attributes)  
 ของหน่วยจอภาพ คล้ายกับคำสั่ง print  
 chr\$(12)

ตัวอย่าง ERASE@&H55,A  
 เป็นการลบข้อมูลบนจอภาพด้วยรูปแบบ □■□■□■□■

4. คำสั่ง PSETH ใช้สำหรับกำหนดเป็นจุด ณ ตำแหน่งที่กำหนดบนหน่วยจอภาพ ตำแหน่งของจุดจะต้องกำหนดเป็นหมายเลขสครัมภ์และแถวโดยหมายเลขสครัมภ์จะมีค่าตั้งแต่ 0 จนถึง (จำนวนตัวอักษรต่อบรรทัด คูณด้วย 8) ลบด้วย 1 และหมายเลขแถวก็จะมีค่าตั้งแต่ 0 จนถึง (จำนวนบรรทัดที่มีในหน่วยจอภาพ คูณด้วย 8) ลบด้วย 1 เช่น ถ้ากำหนดขนาดของหน่วยจอภาพเป็น 80 ตัวอักษร × 25 บรรทัด หมายเลขสครัมภ์จะมีค่า 0-639 และหมายเลขแถวจะมีค่า 0-199

สำหรับรหัส (code) ที่ใช้กำหนดสีในโมดของสี (color mode) หรือลักษณะเฉพาะของหน่วยจอภาพ (screen attributes) ในโมดของขาวดำ (black and white mode) แสดงดังตารางข้างล่างนี้

ส่วนการทำงานของ XOR จะทำการตรวจสอบก่อนที่จะกำหนดเป็นจุดที่กำหนด

รูปแบบคำสั่ง PSETH (column,row[,code])[ ,XOR]

ตัวอย่าง PSETH (200,60,6)  
 PSETH (192,30)





รหัส	สี (โมคของสี)	ลักษณะ (โมคของชาวคำ)
0	Black	Normal
1	Blue	Secret
2	Red	Blink
3	Magenta	Secret
4	Green	Reverse field
5	Cyan	Reverse field Secret
6	Yellow	Reverse field Blink
7	White	Reverse field Secret

5. คำสั่ง PRESETH ใช้สำหรับลบจุด ณ ตำแหน่งของจุดที่กำหนดรายละเอียดต่าง ๆ ได้แก่ หมายเลขสคัมภ์และแถว รวมทั้งรหัสสี เหมือนกับคำสั่ง PSETH

รูปแบบคำสั่ง                      PRESETH (column,row[,code])

ตัวอย่าง                              PRESETH (200,60,7)

6. คำสั่ง POINTH เป็นคำสั่งใช้สำหรับตรวจสอบตำแหน่งของจุดบนจอภาพ ซึ่งถ้าปรากฏเป็นจุด จะได้ผลลัพธ์เป็น (-1) แต่ถ้าไม่ได้กำหนดเป็นจุดก็จะได้ผลลัพธ์เป็น 0 ตำแหน่งของจุดบนหน่วยจอภาพจะกำหนดเช่นเดียวกับคำสั่ง PSETH

รูปแบบคำสั่ง                      POINTH (column,row)

ตัวอย่าง                              PRINT POINTH (30,59)

-1

ตำแหน่ง (30,59) ปรากฏเป็นจุดบนจอภาพอยู่แล้ว

7. คำสั่ง LINEH ใช้สำหรับสร้างเส้นตรงเชื่อมโยงระหว่างตำแหน่งของจุดสองตำแหน่งบนหน่วยจอภาพ การกำหนดตำแหน่งของจุดและรหัสสีเช่นเดียวกับคำสั่ง PSETH แต่สามารถเลือกกำหนดฟังก์ชัน (function) เป็น PSET PRESET หรือ XOR ก็ได้ นอกจากนี้ยังสามารถกำหนดให้สร้างรูปสี่เหลี่ยมมุมฉาก (Rectangle) ขึ้นได้โดยกำหนดด้วย [,B] หมายถึง BOX

รูปแบบคำสั่ง LINEH (column<sub>1</sub>,row<sub>1</sub>)-(column<sub>2</sub>,row<sub>2</sub>),<function>[,code][,B]

ตัวอย่าง LINEH(0,0)-(639,199),PSET,6

LINEH(160,50)-(480,150),PSET,7,B

8. คำสั่ง LPRINT@ เป็นคำสั่งใช้สำหรับพิมพ์ภาพที่ปรากฏบนหน่วยจอภาพด้วยเครื่องพิมพ์ โดยจะใช้คำสั่งนี้หลังจากได้เรียกใช้คำสั่ง MONGR แล้ว ทั้งนี้ถ้าเป็นเครื่องพิมพ์รุ่น PC-8023 จะต้องกำหนด [,A] แต่ถ้าเป็นเครื่องพิมพ์ EPSON MP-80 ก็ไม่ต้องกำหนด [,A]

รูปแบบคำสั่ง LPRINT@ [,A]

ตัวอย่าง LPRINT@,A ..... NEC PC-8023

ประวัติผู้เขียน



นายสัณฐาน ชีรนวิชัย เกิดวันที่ 3 มกราคม 2501 ที่จังหวัดนครปฐม สำเร็จการศึกษา วิศวกรรมศาสตรบัณฑิต (เครื่องกล) จากคณะวิศวกรรมศาสตร์ สถาบันเทคโนโลยีพระจอมเกล้า พระนครเหนือ พ.ศ. 2522 เข้าศึกษาระดับปริญญาโท สาขาวิศวกรรมศาสตร ภาควิชาวิศวกรรมคอมพิวเตอร์ ในปี พ.ศ. 2523 ปัจจุบัน เป็นอาจารย์ประจำภาควิชาวิศวกรรมเครื่องกล คณะวิศวกรรมศาสตร์ สถาบันเทคโนโลยีพระจอมเกล้า พระนครเหนือ