

630 Commence first sailplane launch by printing cockpit using S/R.

```
630 CLS:PRINT"YOUR GO ";B*(B)
640 FORN=1TO1500:NEXT
650 CLS
660 GOSUB3690
670 '
680 '
```

690 Calculate any change in height due to change in velocity of sailplane. (So called total energy effect - or converting potential energy into kinetic energy or the other way around).

```
690 ZZ=(W(B)-S(B))*10:H(B)=H(B)+ZZ
700 T3=S(B)
```

710-720 Calculate height loss assuming a glide thru a static air mass.

```
710 IFS(B)<50THEN3=60
720 T4=T3^2/50:T3=0:H(B)=H(B)-T4
730 IFD(B)=0THEND(B)=360
```

740-800 Calculate, from information on compass course, the new position of sailplane using polar - rectangular conversion.

```
740 T5=(D(B)/360)*6.28318
750 '
760 D(B)=INT(D(B)):IFD(B)>90THEN780:IFD(B)>180THEN790:IFD(B)>270
THEN800
770 T1=SIN(T5)*(S(B)/12):X(B)=X(B)+T1:T2=T1/(TAN(T5)+.01):Y(B)=Y
(B)+T2:GOTO810
780 T5=T5-1.5708:T1=SIN(T5)*(S(B)/12):Y(B)=Y(B)-T1:T2=T1/TAN(T5)
:X(B)=X(B)+T2:GOTO810
790 T5=T5-3.142:T1=SIN(T5)*(S(B)/12):X(B)=X(B)-T1:T2=T1/TAN(T5):
Y(B)=Y(B)-T2:GOTO810
800 T5=T5-4.7120:T1=SIN(T5)*(S(B)/12):Y(B)=Y(B)+T1:T2=T1/TAN(T5)
:X(B)=X(B)-T2
```

810 Apply wind drift.

```
810 IFA3=<2THENX(B)=X(B)+.41ELSEIFA3>2AND3<5THENX(B)=X(B)+.94EL
SEIFA3>4THENX(B)=X(B)+2.0
```

820-850 Sort through thermals and locate nearest one to current position of sailplane.

```
820 FORN=1TO30:IFA3=<2THENH(N,1)=TH(N,1)+.36ELSEIFA3>2AND3<5TH
ENTH(N,1)=TH(N,1)+1ELSEIFA3>4THENH(N,1)=TH(N,1)+1.9
830 NEXTN
840 E4=31
850 FORN=1TO30:IFABS(X(B)-TH(N,1))>30GOTO870ELSEE6=ABS(X(B)-TH(N
,1)):E7=ABS(Y(B)-TH(N,2)):E5=SQR((E6^2)+(E7^2))
860 IFE4>ESTHENE4=E5:EB=N
870 NEXTN
```

880 Set cloudbase flag if sailplane is currently above cloudbase.

```
880 IFH(B)>(A1*AS*2500)THENF1=1ELSEF1=0
890 IFF1=1THENF3=1
```

900-1020 Calculate change in height due to sailplane flying in sinking or rising air.

```
900 IFE4>30THENH(B)=H(B)-(H(B)/400)-RND(10):GOTO1060
910 IFTH(EB,3)<0THEN3310
920 IFE4>15THENH(B)=H(B)-(H(B)/(35+RND(15))):GOTO1060
930 IFE4<6GOTO940ELSEZ3=TH(EB,3)*60/(E4-5):GOTO950
940 Z3=TH(EB,3)*60:GOTO950
950 IFF1=1THEN960ELSEZ3=Z3*(H(B)+1000)/(A1*AS*2500)+.2
960 T8=TH(EB,4)
```

```
970 IFT8<H(B)THEN8=T8/(H(B)+100)
980 IFT8>H(B)THEN8=H(B)/(T8+100)
990 Z3=Z3*T8
1000 IFH(B)>(A1*AS*2500)+4500THENZ3=0
1010 Z3=Z3*A4
1020 H(B)=H(B)+Z3
1030 IFF1=1THEN1060
1040 TH(EB,4)=TH(EB,4)+(A1*20)
1050 IFTH(EB,4)>(A1*AS*2500)THENH(EB,4)=A1*AS*2500
1060 H(B)=H(B)-ABS(CZ/1.5)
1070 '
1080-1250 Print instrument readings.
```

```
1080 PRINT@769, " ";:PRINT@897, " ";:PRINT@672, " ";:
PRINT@789, " ";:PRINT@915, " ";:PRINT@925, " .00 ";:PRINT@8
58, " ";:PRINT@807, " ";
1090 PRINT@671,D(B):PRINT@787,S(B):PRINT@914,CINT(H(B)):V1=((
H(B)-ZZ)-K(B))*0.02:V1=CINT(V1*100):IFV1=0THENV1=.1
1100 V1=V1/100:PRINT@926,V1;
1110 IFCZ=0THEN1=0:GOTO1180
1120 IFCZ=>40THEN1=3:GOTO1180
1130 IFCZ=<-40THEN1=-3:GOTO1180
1140 IFCZ=>10THEN1=2:GOTO1180
1150 IFCZ=<-10THEN1=-2:GOTO1180
1160 IFCZ<10ANDCZ>0THEN1=1:GOTO1180
1170 IFCZ>10ANDCZ<0THEN1=-1
1180 PRINT@810+T1,"";
1190 IFV1>10THENV1=10
1200 IFV1<-10THENV1=-10
1210 V1=FIX(V1/2)
1220 PRINT@863+V1,"";
1230 PRINT@769,"X="";:PRINT@897,"Y="";
1240 PRINT@771, " ";:PRINT@899, " ";
1250 PRINT@771,CINT(X(B))/10:PRINT@899,CINT(Y(B))/10;
```

1260 Test to see if glider has landed (for negative altitude)

```
1260 IFH(B)=<0THENL(B)=1:GOTO3030
```

1270 Test for climb up through cloudbase.

```
1270 IFF1=1ANDF2=0ANDE4=<28THEN3320
```

1280 If glider is already in cloud jump over cloud printing routine.

```
1280 IFF1=1ANDF2=1ANDE4=<28THEN1770
```

1290 Test if glider has emerged from cloud.

```
1290 IFF2=1ANDF1=0THEN3370
1300 IFF1=1ANDF2=1ANDE4>28THEN3370
1310 '
1320-1330 Wipe off screen.
```

1320-1330 Wipe off screen.

```
1320 T1=ABS((W(B)/10)-13)
1330 FORN=0TOT1-1:PRINT@N*64, "
";:NEXTN
```

```
1340 IFF3=1THEN1360
1350 IFS(B)=H(B)THEN1380
```

1360-1370 Clear off old horizon and set new one.

```
1360 T1=ABS((W(B)/10)-13):PRINT@811*64, "
";
1370 T1=ABS((S(B)/10)-13):PRINT@812*64, "
";
```

1380-1750 Sorts through list of thermals. Detect those that are in the sector of sky covered in the forward view from the cockpit and directs control to the cloud printing S/R which prints each sorted cloud at the appropriate location on the screen.