# 18
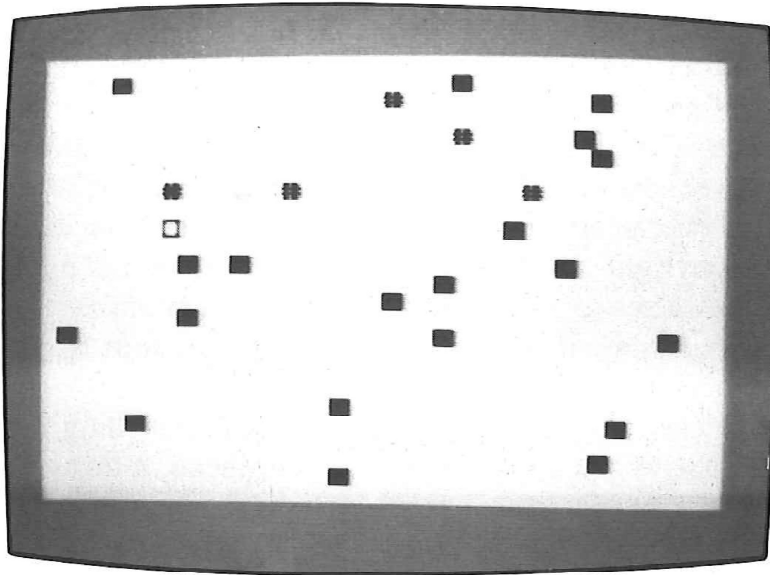# Minefield



You are an escaped prisoner-of-war trying to make your way back to join your own troops. Between you and safety lies an enemy minefield, which you have to cross on foot. It is a barren area, with only a few trees and bushes for cover. The enemy are aware of your escape and, since you are a high-ranking officer, they are out in force to prevent you from getting back alive.

The enemy has sent armoured vehicles to patrol the minefield, with orders to shoot on sight. Although they are a danger to you, they can also be a help. If you can keep out of sight and watch where the vehicles go, you will be able to discover the un-mined paths across the minefield and so reach safety. But put only one foot wrong and you will be blown sky-high by a mine. When you are in sight, the gunners will shoot you, but they cannot see you when you are hiding in a bush. On the other hand, armoured vehicles do not bother to avoid bushes; they simply drive over them. This could be unfortunate for you, if you happen to be hiding in the flattened bush at the time! Apart from that risk, the bushes are a safe place to seek, for there are no mines in, or under, a bush.

### How to play

The game is played at 10 levels, of which the easiest is level 1. The higher the level, the more thickly scattered are the mines. Above level 5 the guns fire further. At the highest levels (8 and over) the vehicles destroy the bushes as they pass over them. If you take too long to cross the minefield, you may find that few places remain in which to hide.

As soon as you have keyed in your chosen level and pressed 'RETURN' the screen clears, the mines are laid (though you cannot see them) and the bushes are displayed in unmined locations. Then the black vehicles of the enemy appear at the top of the screen. You are the red character which is at the top left corner. Your destination is the bottom right corner. The whole of the top row and bottom row are clear of mines so, once you reach the bottom of the screen, it is safe to move along it (though you may still get shot by a passing vehicle).

The vehicles move off into the minefield, travelling down the screen at first. When a vehicle finds a mine ahead, it turns right and then proceeds in a new direction. Vehicles also turn right when one is blocked by another. All the time you will hear the sounds of gunfire, and shells bursting beside you. You move by using these keys:

U   move up (toward top of screen)
H   move left
J   move right
N   move down

If you press no key, you stay in the same place. You cannot move off the edge of the screen, but the vehicles can. When you are near one edge of the screen, it is essential to watch the opposite edge, for a vehicle may suddenly appear close to you and shoot you before you have had time to get clear. In levels 4 and lower, the range of the guns is 1 row or column. In other words, the vehicle has to be on the next screen location, vertically or horizontally. At levels 5 and over the range is extended to two rows or columns. When you are hiding in a bush, you cannot be shot but, if a vehicle runs over the bush you are hiding in, you are run over.

The game ends with suitable sound effects, and you are told how long you took to get to safety. If you failed to reach your goal, you are told how long you managed to survive the hazards of the minefield.

Press the space-bar to play again.

## Winning tactics

Give the vehicles a few moments to head through the minefield and watch where they go. At the lower levels there is a chance that there is a clear path straight across. Even then, watch out for deflected vehicles cutting across your path and shooting you as they pass. If there is a bush close by, it is worth deviating from your path to hide until the vehicle has passed. Watch out for pairs of vehicles travelling on parallel paths, two or three rows or columns apart. Between them, their guns cover a wide area of the minefield and it is difficult to move out of their way quickly. One of the worst dangers is the vehicle which goes off the screen on one side and instantly reappears on the opposite side. If it goes off the left edge, it reappears one row further up the screen on the right. If it leaves the right edge it reappears one row down on the left. If you are on the extreme edge, it is possible to be shot by a vehicle which approaches the opposite edge. In effect, it catches you unawares by suddenly appearing over the horizon. It is this factor which makes it essential to take care when you have got to the bottom of the screen and are making your final dash for safety.

## Keying in

There are no special problems. Control characters used are:

CLEAR: lines 80, 100, 700, 800, 900, 1000
CTRL/2: lines 700
CRSR DOWN: lines 710(3,2), 870(3,2), 980(3,2), 1060(3,3)
CTRL/7: line 1510

Unlisted characters used are:
C=/8: lines 900 (after CLEAR), 1000 (after CLEAR)

## Program design

| | |
|---|---|
| 10–50 | Initialising variables and sound of vehicles. |
| 60–70 | Asking for required level. |
| 80–180 | Setting up minefield, with bushes. |
| 190–220 | Resetting variables. |
| 230–390 | Processing player's move. |
| 400 | Processing moves of vehicles, in turn. |

## Points of interest

The mines are displayed on the screen as asterisks (character code
42) but since they are displayed in light grey (colour code 15, line 90)
they are invisible to the player. They are not invisible to the
computer, which PEEKs the character code RAM at lines 310 and
460 to find out if the player or a vehicle is about to move on to a
mine.

## The program

```
10 REM ** MINEFIELD **
20 G=1024:H=55296:DIM M%(60),S%(20)
30 S=54272:CB=53280:CS=53281:GOSUB 3000
40 POKE S+14,8:POKE S+18,32:POKE S+3,2:P
OKE S+24,143:POKE S+6,242:POKE S+4,65
50 POKE CB,5:POKE CS,15:POKE 649,1
60 POKE S+7,100:POKE S+8,1:POKE S+13,240
70 POKE S+11,129:POKE S+24,1
80 PRINT"◻":INPUT"LEVEL (1-10)";L$
90 L=VAL(L$):IF L<1 OR L>10 THEN 80
100 PRINT"◻"
110 FOR J=1 TO 30+3*L:M%(J)=RND(1)*920+4
0:POKE H+M%(J),15:POKE G+M%(J),42:NEXT
120 FOR J=1 TO 20:S%(J)=RND(1)*920+40
130 FS=0:FOR K=1 TO 30+3*L
140 IF S%(J)=M%(K) THEN FS=1
150 NEXT
160 IF FS=1 THEN 120
170 POKE S%(J)+H,5:POKE S%(J)+G,160
180 NEXT
190 F=0:P=0:PN=0:PD=1:FS=1:POKE G,209:PO
KE H,2:TI$="000000"
200 FOR J=1 TO 5
210 C%(J)=7*J:CN%(J)=C%(J):CD%(J)=2:POKE
 G+C%(J),35:POKE H+C%(J),0
220 NEXT
230 GET A$
240 IF A$="U" THEN PN=P-40
250 IF A$="J" THEN PN=P+1
260 IF A$="H" THEN PN=P-1
270 IF A$="N" THEN PN=P+40
280 IF PN<0 OR PN>999 THEN PN=P
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```
290 IF A$="H"AND INT(P/40)=P/40 OR A$="J
"AND INT((P+1)/40)=(P+1)/40 THEN PN=P
300 IF PN=999 THEN 700
310 PG=PEEK(G+PN)
320 IF PG=42 THEN 800
330 IF PG=35 THEN PN=P
340 IF PN=P THEN 400
350 POKE G+P,32+FS*128
360 IF FS=1 THEN POKE H+P,5:FS=0
370 SS=PEEK(H+PN)AND7
380 IF SS=5 THEN FS=1
390 P=PN:POKE G+P,209:POKE H+P,2+FS*3
400 J=1
410 IF CD%(J)=0 THEN CN%(J)=C%(J)-40
420 IF CD%(J)=1 THEN CN%(J)=C%(J)+1
430 IF CD%(J)=2 THEN CN%(J)=C%(J)+40
440 IF CD%(J)=3 THEN CN%(J)=C%(J)-1
450 IF CN%(J)<0 OR CN%(J)>999 THEN CN%(J
)=CN%(J)-1000*SGN(CN%(J))
460 PG=PEEK(G+CN%(J))
470 IF PG=42 OR PG=35 OR PG=209 THEN CD%
(J)=CD%(J)+1:CN%(J)=C%(J)
480 IF CD%(J)=4 THEN CD%(J)=0
490 IF FS=1 THEN 530
500 D=ABS(P-CN%(J)):IF D=1 OR D=40 THEN
FG=1
510 IF L>5 AND D=2 OR L>5 AND D=80 THEN
FG=1
520 IF FG=1 THEN 900
530 IF PG=209 THEN 1000
540 IF CN%(J)=C%(J) THEN 600
550 IF L>8 THEN CC%(J)=0
560 POKE G+C%(J),32+128*CC%(J)
570 IF CC%(J)=1 THEN POKE H+C%(J),5:CC%(
J)=0
580 PS=PEEK(H+CN%(J))AND7:IF PS=5 THEN C
C%(J)=1
590 C%(J)=CN%(J):POKE G+C%(J),35:POKE H+
C%(J),0:POKE S+24,1
600 J=J+1:IF J<6 THEN 410
610 IF RND(1)<.8 THEN 230
620 FR=30000+INT(RND(1)*25000)
630 POKE S+4,65:POKE S+11,128
640 POKE S+24,143:FOR J=1 TO 25
650 FQ=FR-PEEK(S+27)*80:HF=INT(FQ/256):L
F=FQ-HF*256
660 POKE S,LF:POKE S+1,HF
670 NEXT
680 POKE S+4,64:POKE S+12,2:POKE S+13,25
2:POKE S+7,20:POKE S+8,2:POKE S+11,129
690 GOTO 230
700 PRINT"🔲":POKE CB,6:POKE CS,2:GOSUB
3000
710 PRINTTAB(10)"XXXXYOU HAVE ESCAPED!":P
RINTTAB(11)"XXXIN";INT(TI/60);"SECONDS"
720 POKE S+24,15:POKE S+5,100:POKE S+6,0
0
730 FL=75:FH=34:D=4:GOSUB 2000:GOSUB 200
0
740 FL=94:FH=32:D=2:GOSUB 2000
750 FL=75:FH=34:GOSUB 2000
760 FL=126:FH=38:GOSUB 2000
770 FL=214:FH=28:D=8:GOSUB 2000
780 FL=177:FH=25:GOSUB 2000
790 POKE S+24,0:GOTO 1500
800 PRINT"🔲":GOSUB 3000
```

```
810 POKE S+24,15:POKE S+12,0:POKE S+13,2
50:POKE S+7,20:POKE S+0,2:POKE S+11,129
820 POKE CB,0:POKE CS,0
830 FOR K=1 TO 10:NEXT
840 POKE CS,1
850 FOR K=1 TO 5:NEXT
860 POKE S+11,128:POKE CS,0
870 PRINTTAB(12)"XOODYOU WERE MINED":PRIN
TTAB(10)"XOOAFTER";INT(TI/60);"SECONDS"
880 GOTO 1500
900 PRINT"J":POKE CB,2:POKE CS,2:GOSUB 3
000
910 POKE S+24,15:POKE S+6,240:POKE S,56:
POKE S+1,27
920 FOR J=1 TO 15
930 POKE S+4,129
940 FOR K=1 TO 5:NEXT
950 POKE S+4,128
960 FOR K=1 TO 20:NEXT
970 NEXT:POKE S+24,0
980 PRINTTAB(13)"XOODYOU WERE SHOT":PRINT
TAB(11)"XOOAFTER";INT(TI/60);"SECONDS"
990 GOTO 1500

1000 PRINT"J":POKE CB,2:POKE CS,2
1010 GOSUB 3000
1020 POKE S+24,15:POKE S,144:POKE S+1,23
5:POKE S+5,15:POKE S+6,240:POKE S+4,33
1025 POKE S+7,100:POKE S+8,100:POKE S+13
,240:POKE S+11,129
1030 FOR J=1 TO 1500:NEXT
1040 POKE S+4,32:POKE S+11,128
1050 POKE S+24,0
1060 PRINTTAB(10)"XOODYOU WERE RUN OVER":
PRINTTAB(10)"XOODAFTER";INT(TI/60);"SECON
1500 GET A$:IF A$<>" " THEN 1500
1510 PRINT"S":FG=0: GOTO 30
2000 POKE S,FL:POKE S+1,FH:POKE S+4,33
2010 FOR K=1 TO 120*D:NEXT
2020 POKE S+4,32
2030 RETURN
3000 FOR J=0 TO 24:POKE S+J,0:NEXT
3010 RETURN
```

## Variations

The number of mines planted is 30 plus 3 times the level of play (line 80). To make the game even more difficult, increase the number of mines. In this case line 130 also needs amending to the new value. You can add more vehicles by altering the value of J in line 200. Reduce the initial spacing between them by changing the '7' in line 210 to '6' or '5'. The value in line 600 also needs changing to allow for a greater value of J.

Having more vehicles makes the game slower, although the added time is necessary to give the player time to assess the movements of all the vehicles. As it stands, the game is certainly fast enough but, to increase speed still further, cut out the sound effect routine by deleting lines 610–680.