NEW POSTER PROGRAMS

No.2

75p

FROM THE PUBLISHERS OF ZX COMPUTING

GIANT POSTER INSIDE

ZX81

An exciting graphics/text simulation game for the ZX-81

Test MATCH

Playing The Game

You are the captain of one of the two teams who are about to play for the ZX Ashes. Select the names of the two teams who are playing then choose your side, the players and their talent — bowling, batting, fielding or all rounder. Name the opposing team's players (if you wish), flip the coin and away you go.

If it's your innings, then give the computer your batting order and watch the graphics/text simulation of the action as the wickets fall and the tension — and hopefully the score — rises.

If you're fielding then careful choice of bowlers and selective fielding positions can make all the difference between glorious victory or ignominious defeat.

After each over you can check the scoreboard and decide whether to move your fielders or even replace the bowler!

Although most of the game is written in machine code, it's not an arcade 'reflex' game, but an all-action representation of a one-day cricket match, where tactics and thought could result in a win — and a bad decision could lose the game.

Section 1
Machine Code

This is the code which actually 'plays' the game. It is written in hexadecimal or Hex code, and is most likely to cause any problems that could arise. We have checked this code rigorously to be absolutely certain and confident that there are no errors.

The machine code is held in the first line of the program and creating this line is our first problem — we need a line: 2 REM followed by 3030 dots — an impossible task to do accurately by hand even if you had the patience, so we have written a program to do it for us.

Fig 1. is a simple variation of the many Hex loaders. If you already have one then use that. However, the code from LINE 9200 is a mini-dissassembler, and you will pro-

```
9000 PRINT "ADDRESS TO START ?";
9010 INPUT A
9020 PRINT A
9030 LET A$=""
9040 LET X=0
9050 IF A$="" THEN INPUT A$
9060 IF A$="S" THEN STOP
9070 IF X=0 THEN SCROLL
9080 IF X=0 THEN PRINT A;":    ";
9090 PRINT A$( TO 2);"  ";
9100 POKE A,16*CODE A$+CODE A$(2
)-476
9110 LET A=A+1
9120 LET A$=A$(3 TO )
9130 LET X=X+1
9140 IF X=6 THEN GOTO 9040
9150 GOTO 9050
9200 PRINT "START ADDRESS ?"
9210 INPUT A
9220 FOR I=0 TO 21
9230 SCROLL
9240 PRINT A;":    ";
9250 FOR J=0 TO 5
9260 LET P=PEEK A
9270 LET N=INT (P/16)
9280 PRINT CHR$ (N+28);CHR$ (P-1
6*N+28);"  ";
9290 LET A=A+1
9300 NEXT J
9310 NEXT I
9320 IF CODE INKEY$<>118 THEN GO
TO 9320
9330 GOTO 9220
```

Figure 1.

bably need this (or equivalent) for checking your code. Type it in.

Now type 1 REM . . . followed by 96 dots and New Line, then 3 REM and New Line. Run the program and in response to the prompt 'Address to Start?' type 16514 and New Line. Now enter the 96 bytes of the Hex code in Fig. 2.

I suggest that you follow the same procedure for all the Hex code, and enter the six bytes (12 characters) a line at a time. This is done by entering all 12 characters consecutively with no spaces between any of them, then pressing New Line. Now check the screen against the

```
16514:    D6  0B  CD  23  0F  01
16520:    05  00  2A  82  40  E5
16526:    09  44  4D  2A  29  40
16532:    09  22  29  40  21  0C
16538:    40  3E  09  5E  29  56
16544:    D5  EB  03  EB  72  2B
16550:    73  23  23  3D  2B  03
16556:    D1  18  EE  E1  E5  01
16562:    E2  40  A7  ED  42  44
16568:    4D  E1  ED  5B  21  E5
16574:    40  36  00  23  36  02
16580:    23  C1  03  03  71  23
16586:    70  23  36  EA  0B  0B
16592:    23  11  01  00  EB  19
16598:    EB  36  1B  ED  5B  36
16604:    75  34  CD  2B  0F  C3
```

Figure 2.

print-out (a friend could be useful here). When all the code has been entered type 'S' and New Line and the program will stop.

LIST and look at line 1 — complete chaos!

Enter the extra BASIC of Fig. 3, then SAVE your program (if you don't and you've made any errors then you'll probably lose all your work). This is also an extremely useful routine for any other machine-code program you may want to enter.

```
4 PRINT "REM LENGTH ?"
5 INPUT N
6 POKE 16514,N-256*INT (N/256

7 POKE 16515,INT (N/256)
8 RAND USR 16515
9 STOP
```

Figure 3.

Now for the big test — RUN the program and to the prompt 'REM LENGTH?' type 3030   and then, if all is well, LIST, and your program should show 1 REM with the machine code and 2 REM followed by a screenful of dots.

Type 1 and New Line to remove the existing machine code — its job is done, and you did keep a copy — didn't you?

If it has not worked then reload your program and type GOTO 9200. To the prompt 'START ADDRESS?' type 16514 New Line. The Hex code will be displayed on the screen (plus some extra after the 96 bytes — ignore this, it's unimportant). Check this very carefully against the code in Fig. 2. When you find the error make a note of the number (address) at the start of the line, press BREAK and type GOTO 9000. Enter the number of the line in which the error appears press New Line then enter *all six bytes* of that line and New Line: Type 'S' and New Line. *Recheck* by repeating the above procedures or — if all is well SAVE then RUN etc.

You now should have your monster REM. Next, delete one at a time lines 4, 5, 6, 7, 8, 9.

You can now begin the task of entering Program 1, the Hex code. As this is so huge I suggest you take your time and do it in several sections over a period of days: check and recheck each screenfull — just *one* wrong character entry could destroy your program when run and will take you ages to locate. I suggest you enter two or three screenfulls each session — don't forget to note the number of the last line entered.

When starting your next session use the dissassembler (by GOTO 9200) and recheck the code you entered the last time, then BREAK and RUN; enter your next line number and continue with your entries. If you find an error correct it by the same process as given for the REM creating program (Fig. 2).

Note: You cannot test it until *all* the BASIC has been entered.

Section 2
BASIC

This section of the game is mostly an information gathering program. All the player's inputs are stored for use by the Machine Code section.

How It Runs

All the player's inputs are taken and stored and each member of both teams is given four skill levels: one each for batting, bowling, fielding and all round ability. The program allocates a high minimum skill to the man's main skill.

During a match each encounter is resolved as follows:
Compare each players skill for his task, with his all round skill. If AR skill is greater and a random chance factor of 1-5 is found, then his rating for the encounter is the AR skill. If his task skill is greater then that is taken. For example, Bowling:

Bowling Skill = 3
All Round = 5

A player has a one in five chance of using AR skill.
For example, Batting:

Batting Skill = 4
All Round = 2

This Batsman uses skill 4.

The program will now compare the Batsman's skill against the Bowler's skill.

If the Bowler's skill is greater than the Batsman's the Batsman has less chance of hitting the ball and more chance of being bowled out, and vice versa.

At each stage of the game (Bowler/Batsman, Batsman/Fielder), these comparisons are made. Batsman and Bowler combinations tend to produce the same type of stroke and ball 'flight' so careful observation and fielder positioning can make a difference.

Hints

Keep a note of your players number, name and main skill. e g

1 Trueman — Batsman

This may help when entering the numbers of players for bowling order etc.

Note: for game entry convenience the letter 'A' has been used to represent the number 10 and 'B' for 11.

The scoreboard is not fixed but as the players change ends (uneven runs!) the scores also change position! This is easy to get used to as the L/R score corresponds to the L/R batsmen positions at the end of the over.

When you are fielding the cursor (*) starts in the Wicket Keeper's position and the first over is from left to right. Position your Wicket Keeper immediately behind the right hand wicket at the start of the first over — the Wicket Keeper/Bowler positions will be changed at the beginning of each over by the computer.

Emergency Cover

If you encounter any problems with getting the program to run — it is almost certainly caused by a slip or two whilst entering the code. Get someone else to go over the whole thing for you. If you follow the instructions given here *it will work*. You may think you've done it all perfectly, but get it checked all the same.

If all else fails then you can write for assistance to — Poster Programs No 2. ASP Ltd, 145 Charing Cross Road, London WC2H 0EE. Please note that we cannot deal with *any* enquiries by telephone.

```
16514:  14 63 ED 63 28 64      17120:  D5 10 C8 D1 2A 0C      17726:  18 02
16520:  47 64 8C 63 BA 63      17126:  40 01 D6 02 3E 17      17732:  40 D1
16526:  00 63 04 63 BD 62      17132:  ED B1 20 03 2B 36      17738:  3E 01
16532:  D7 62 74 63 04 05      17138:  00 CD 18 47 21 2E      17744:  A7 FE
16538:  06 07 03 08 02 09      17144:  49 06 03 C5 3E 01      17750:  02 18
16544:  01 06 0A 06 03 01      17150:  CD 10 41 E5 CD 2F      17756:  C3 59
16550:  06 00 00 FD 64 03      17156:  41 E1 C1 10 F2 CD      17762:  A0 49
16556:  0F 02 09 30 21 08      17162:  BF 40 F5 CD F9 40      17768:  1A FE
16562:  00 06 0A 00 9E 00      17168:  F1 FE 32 20 06 2A      17774:  A0 10
16568:  00 00 01 00 00 00      17174:  96 40 C3 54 42 FE      17780:  41 E1
16574:  00 CD BB 02 2C 20      17180:  27 CA A2 42 FE 38      17786:  FE 34
16580:  FA CD BB 02 44 4D      17186:  CA 76 47 FE 35 20      17792:  10 F6
16586:  51 14 28 F7 CD BD      17192:  CD 3A AB 40 47 FE      17798:  03 CD
16592:  07 7E C9 06 0B 11      17198:  03 20 03 AF 18 01      17804:  20 0B
16598:  82 40 1A 5F 13 1A      17204:  3C 32 AB 40 78 21      17810:  49 CD
16604:  67 36 34 13 10 F6      17210:  A3 40 FE 00 28 04      17816:  46 3E
16610:  C9 2A 32 40 54 5D      17216:  23 3D 18 F8 7E CD      17822:  CD 10
16615:  29 29 19 29 29 29      17222:  9E 43 F5 CD 04 41      17828:  40 01
16622:  19 22 32 40 7C 90      17228:  EB 23 36 39 23 36      17834:  14 41
16628:  30 FD 80 3C C9 06      17234:  34 13 1A 47 13 13      17840:  0B 20
16634:  20 2A A9 40 36 00      17240:  1A 23 E5 CD BE 43      17846:  C9 3C
16640:  23 18 FB C9 06 00      17246:  32 B3 40 3A B1 40      17852:  97 40
16646:  18 02 06 01 2A 10      17252:  FE 00 20 0B 2A 98      17858:  7E 47
16652:  40 0E 06 09 ED 5B      17258:  40 22 AD 40 3C 3C      17864:  00 78
16658:  A9 40 4E 23 06 00      17264:  32 B1 40 3A B2 40      17870:  40 AF
16664:  FE 01 20 03 ED B0      17270:  FE 00 20 05 3A AD      17876:  07 32
16670:  C9 09 23 23 23 23      17276:  40 18 03 3A AE 40      17882:  B0 40
16675:  3D 18 ED 21 C9 48      17282:  2A 10 40 01 06 00      17888:  C1 C1
16682:  3E 01 CD 10 41 21      17288:  09 D1 13 F5 CD 14      17894:  C1 3E
16688:  00 00 2B 7C B5 20      17294:  41 7E 23 23 23 47      17900:  40 7E
16694:  FB C9 2A 0C 40 23      17300:  7E CD BE 43 32 B4      17906:  AF 77
16700:  36 07 05 1E 23 36      17306:  40 C3 F0 43 F5 01      17912:  3A B2
16705:  03 10 FB 23 36 64      17312:  82 40 3D FE 00 28      17918:  05 21
16712:  06 15 23 36 05      17318:  04 03 03 16 F7 ED      17924:  21 B0
16718:  11 1F 00 19 36 85      17324:  5B 96 40 0A 6F 03      17930:  40 F1
16724:  10 F4 23 23 36 62      17330:  0A 67 22 96 40 7A      17936:  06 04
16730:  06 1E 23 36 83 10      17336:  02 7B 0B 02 F1 C9      17942:  40 D1
16736:  FB 23 36 81 23 23      17342:  A7 B8 38 0D C5 F5      17948:  10 FC
16742:  22 A9 40 2A 0C 40      17348:  06 03 CD E3 40 FE      17954:  47 F1
16748:  01 70 01 09 36 85      17354:  01 F1 C1 20 01 78      17960:  CD 2F
16754:  01 16 00 09 36 05      17360:  C9 E5 D5 C5 3E 9B      17966:  F1 CD
16760:  23 AF ED 42 36 3D      17366:  32 30 40 CD B2 0B      17972:  49 3E
16766:  2B 2B 09 36 3D 23      17372:  21 00 07 CD 32 41      17978:  F1 C6
16772:  23 C9 00 00 00 00      17378:  3E A0 32 30 40 C1      17984:  47 28
16778:  CD 36 41 36 17 E5      17384:  C5 CD B2 0B C1 D1      17990:  7D 6C
16784:  CD BF 40 E1 FE 38      17390:  E1 C9 00 28 05 FE      17996:  2A AF
16790:  CA 66 42 FE 35 28      17396:  00 28 03 01 9B 16      18002:  22 AF
16795:  59 F5 7E FE 34 28      17402:  18 13 CD D1 43 0C      18008:  C1 C1
16802:  02 36 00 F1 FE 21      17408:  02 20 F9 05 16 13      18014:  9E 43
16808:  20 0D 2B 7E FE 34      17414:  15 20 F3 D1 F1 FS      18020:  B9 40
16814:  28 71 FE 00 28 3E      17420:  1D 20 F3 D1 F1 FS      18026:  07 32
16820:  23 18 3B FE 22 20      17426:  D5 CS CD 04 41 21      18032:  45 43
16826:  12 01 21 00 09 7E      17432:  86 49 3E 01 CD 14      18038:  3A AC
16832:  FE 34 28 5D FE 00      17438:  41 2A 10 40 01 06      18044:  40 3A
16838:  28 2A AF ED 42 18      17444:  02 09 3A B3 40 F5      18050:  28 03
16844:  25 FE 23 20 12 01      17450:  CD 14 41 F1 47 CD      18056:  32 B2
16850:  21 00 AF ED 42 7E      17456:  E3 40 FE 01 CA CA      18062:  B8 49
16856:  FE 34 28 45 FE 09      17462:  44 F5 47 CD E3 40      18068:  8A 40
16862:  28 12 09 18 0F FE      17468:  47 F1 80 F5 06 0A      18074:  4C 06
16868:  24 20 05 23 7E FE      17474:  CD E3 40 57 D5 06      18080:  6F 26
16874:  34 28 34 FE 00 28      17480:  0A CD E3 40 D1 5F      18086:  40 A7
16880:  01 2B 36 17 13 99      17486:  06 02 CD 07 3E 40      18092:  F1 01
16886:  36 34 3A A6 40 FE      17492:  FE 01 20 07 3E 05      18098:  2F 41
16892:  00 28 07 3D 32 A6      17498:  32 C0 44 18 05 3E      18104:  CD E8
16898:  40 3C 32 A7 3A A7      17504:  04 32 C0 44 3A B2      18110:  FE 00
16904:  40 3C 32 A7 40 01      17510:  40 FE 00 28 07 3E      18116:  16 02
16910:  7D 02 03 7C 02 C3      17516:  0C 32 B9 44 18 05      18122:  44 C3
16916:  46 42 03 03 03 18      17522:  3E 0D 32 B9 44 D1      18128:  06 11
16922:  EF 36 17 3E 01 F5      17528:  E1 C1 6A E5 D5 C5      18134:  4F 13
16928:  01 82 40 0A 5F 03      17534:  79 A7 1F 57 78 A7      18140:  42 28
16934:  01 82 40 0A 5F 93      17540:  1F 5F 3E 15 93 6F      18146:  13 10
16940:  0A 57 EB AF ED 52      17546:  26 00 06 05 29 10      18152:  2A 0C
16946:  20 0B EB 3A A8 40      17552:  FD 82 4F 06 00 09      18158:  09 06
16952:  3C 32 A8 40 C3 8F      17558:  ED 4B 0C 40 09 23      18164:  28 05
16958:  41 EB F1 3C F5 03      17564:  01 21 00 09 7E FE      18170:  1D CD
16964:  18 E3 3A A7 40 FE      17570:  83 CA DF 45 A7 ED      18176:  40 2A
16970:  0B C2 8F 41 3D 32      17576:  42 7E FE 00 28 07      18182:  28 05
16976:  A7 40 36 17 E5 3E      17582:  FE 34 28 58 C3 DF      18188:  03 01
16982:  01 21 EA 48 CD 10      17588:  45 C1 CD D1 43 0C      18194:  34 7C
16988:  41 CD 2F 41 CD F9      17594:  D1 15 20 6E E1 55      18200:  2A 0C
16994:  40 C3 90 40 3A A7      17600:  05 1D 29 B7 25 20      18206:  FE 00
17000:  40 FE 0A C2 8F 41      17606:  B4 C3 E7 45 2A 0C      18212:  01 18
17006:  3A 98 40 FE 00 C2      17612:  40 3A B2 40 FE 00      18218:  09 36
17012:  E4 42 06 05 21 98      17618:  28 05 01 4E 01 18      18224:  C9 78
17018:  40 C5 E5 06 06 CD      17624:  03 01 66 01 09 C1      18230:  9C C9
17024:  E3 40 47 21 B0 40      17630:  E5 21 B3 40 7E 23      18236:  A6 28
17030:  23 10 FD 57 7E FE      17636:  A7 BE 38 03 06 04      18242:  B1 20
17036:  00 20 EE 3E 01 77      17642:  18 02 06 09 CD E3      18248:  5E 47
```

1. (code)

```
06  04  CD  E3
F5  21  8F  49
CD  14  41  F1
03  30  04  C6
06  C2  E6  45
46  D1  F5  21
13  01  06  04
00  20  04  ED
F7  D5  CD  2F
06  04  2B  7E
28  36  36  00
CD  F9  40  06
E3  40  FE  01
3E  01  21  A4
10  41  C3  59
01  21  AC  49
41  F1  2A  10
94  02  09  CD
3A  B1  40  FE
04  C1  C1  00
32  B1  40  21
47  23  10  FD
3A  B2  40  FE
20  09  32  AD
32  AF  40  18
AE  40  AF  32
C3  5A  46  C1
3E  04  18  03
01  F5  21  B8
FE  00  28  06
2B  77  2B  77
40  FE  00  20
AF  40  18  03
40  ED  5B  B6
FE  01  28  09
E5  D5  CD  E3
E1  47  34  13
ED  53  B6  40
F5  D5  C5  F5
41  CD  F9  40
08  41  21  B1
01  CD  14  41
1C  12  D1  CB
17  2A  AD  40
67  22  40  40
40  7D  6C  67
40  18  03  C1
C1  F1  F5  CD
CD  11  4A  3A
3C  FE  06  28
B9  40  F1  C3
AF  32  B9  40
40  3C  32  AC
B2  40  FE  00
3D  18  01  3C
40  3E  01  21
CD  10  41  3A
FE  00  C2  02
64  CD  E3  40
01  ED  4B  B6
ED  42  30  05
01  00  C9  CD
CD  F9  40  F1
46  3A  B2  40
20  04  3E  0C
3E  0D  32  05
F6  42  01  01
82  40  C5  1A
1A  47  A7  ED
07  09  C1  0C
EF  C9  C1  C9
40  01  6C  01
20  7E  10  34
23  10  F8  18
CE  46  3A  B2
0C  40  FE  00
01  6F  01  18
87  01  09  36
12  1B  7D  12
40  3A  B2  40
20  05  01  6F
03  17  22  96  40
B1  20  03  36
CD  5E  47  FE
07  77  0B  78
F3  C9  2B  CD
FE  A6  28  03
```

```
18332:  01  07  00  C5  CD  6B
18338:  0B  01  15  05  CD  F5
18344:  0B  C1  D1  CD  6B  0B
18350:  01  0E  06  CD  F5  08
18356:  11  CE  49  01  03  00
18362:  C5  CD  6B  0B  01  0E
18368:  0A  CD  F5  08  11  D1
18374:  49  C1  CD  6B  0B  01
18380:  02  0D  CD  F5  08  11
18386:  D4  49  01  05  00  CD
18392:  6B  0B  01  15  0D  CD
18398:  F5  08  11  D9  49  01
18404:  06  00  CD  6B  0B  01
18410:  06  10  CD  F5  08  01
18415:  04  00  3A  BA  40  FE
18422:  01  28  05  11  DF  49
18428:  18  03  11  E3  49  CD
18434:  6B  0B  11  E7  49  01
18440:  0D  00  CD  6B  0B  2A
18446:  0C  40  01  74  00  09
18452:  E5  ED  4B  B6  40  CD
18458:  31  47  E1  01  3C  00
18464:  09  E5  3A  AE  40  4F
18470:  CD  31  47  E1  01  14
18476:  00  09  E5  3A  AD  40
18482:  4F  CD  31  47  E1  01
18488:  2A  00  09  E5  3A  B0
18494:  40  4F  CD  31  47  E1
18500:  01  14  00  09  E5  3A
18506:  AF  40  4F  CD  31  47
18512:  E1  01  16  00  09  E5
18518:  3A  B1  40  D6  02  4F
18524:  CD  31  47  E1  01  A0
18530:  00  09  E5  3A  AC  40
18536:  4F  CD  31  47  E1  01
18542:  13  00  09  3C  4F  CD
18548:  40  3C  4F  CD  31  47
18554:  E1  01  58  00  09  E5
18560:  ED  4B  0E  4A  CD  31
18566:  47  E1  01  05  00  09
18572:  3A  10  4A  4F  CD  31
18578:  47  CD  F9  40  21  F4
18584:  49  3E  01  CD  10  41
18590:  CD  BF  40  FE  2A  20
18596:  04  01  00  00  C9  FE
18602:  28  20  F1  21  74  47
18608:  36  00  CD  67  47  CD
18614:  38  41  CD  D3  40  CD
18620:  E8  46  3A  BA  40  FE
18626:  00  CA  F6  42  C3  05
18632:  4C  20  2E  33  3B  26
18638:  31  2E  23  09  2A  33
18644:  39  37  3E  0E  35  31
18650:  2A  26  38  2A  00  37
18656:  2A  16  2A  33  39  2A
18662:  37  00  00  00  1D  26
18668:  31  31  00  38  2A  39
18674:  0E  37  2A  35  34  00
18680:  2E  39  2E  34  33  00
18686:  34  37  00  35  37  2A
18692:  38  38  00  38  19  1D
18698:  38  39  00  27  34  3C
18704:  31  2A  37  00  10  2A
18710:  33  39  2A  37  00  1D
18716:  00  39  34  00  27  11
18722:  03  1E  33  29  03  1F
18728:  37  29  03  20  39  2D
18734:  1B  28  2D  34  34  38
18740:  2A  00  39  34  00  32
18746:  34  3B  2A  00  2B  2E
18752:  2A  31  29  2A  87  01
18758:  00  10  32  11  1C  28
18764:  2D  26  33  2C  2A  00
18770:  39  2D  2A  00  27  34
18776:  3C  31  2E  33  2C  00
18782:  34  37  29  2A  37  00
18788:  10  27  11  1E  38  2A
18794:  2A  00  38  28  34  37
18800:  2A  27  34  26  37  29
18806:  00  10  38  11  1A  34
18812:  37  00  35  31  26  3E
18818:  00  10  3C  3C  38  00
18824:  27  34  34  2B  2E  2A
18830:  26  10  00  2B  2E  2A
18836:  31  29  38  00  39  2D
18842:  3C  3F  26  39  07  33
18848:  34  39  00  34  3A  35
```

```
18938:  00  10  28  11  34  33
18944:  39  2E  33  3A  2A  00
18950:  34  37  00  10  2A  11
18956:  33  29  83  00  0A  CD
18962:  2F  41  CD  F9  40  C9
18968:  2A  B6  40  22  0E  4A
18974:  3A  B1  40  3D  32  10
18980:  4A  21  A7  40  06  16
18986:  36  00  23  10  FB  3E
18992:  01  32  BA  40  32  B2
18998:  40  32  05  41  AF  32
19004:  09  41  CD  28  4B  CD
19010:  38  41  CD  D2  4A  11
19016:  35  4B  21  98  40  06
19022:  0B  C5  E5  EB  3E  01
19028:  CD  10  41  E5  CD  BF
19034:  40  A7  FE  28  38  03
19040:  C3  BF  4B  FE  1C  28
19046:  F9  21  3C  40  D6  1C
19052:  F5  47  23  10  FD  7E
19058:  FE  00  28  03  F1  18
19064:  E7  3C  77  F1  D1  E1
19070:  77  23  C1  10  CC  06
19076:  04  CD  E3  40  FE  01
19082:  20  03  CD  D2  4A  06
19088:  0A  CD  E3  40  FE  01
19094:  20  03  CD  28  4B  00
19100:  CD  E8  46  3A  B2  40
19106:  FE  00  20  04  3E  0C
19112:  18  02  3E  0D  32  05
19118:  44  CD  2F  41  CD  F9
19124:  40  21  7B  4B  3E  01
19130:  CD  10  41  CD  BF  40
19135:  FE  35  CA  06  4C  FE
19142:  38  CA  78  47  FE  29
19148:  20  EF  CD  B2  4B  C9
19154:  2A  0C  40  06  17  23
19160:  7E  FE  76  20  04  10
19166:  F8  18  08  FE  34  20
19172:  F2  36  00  18  EE  06
19178:  0B  21  9C  4B  C5  4E
19184:  23  46  23  E5  2A  0C
19190:  40  09  E5  06  02  CD
19196:  E3  40  F5  06  02  CD
19202:  E3  40  F1  FE  01  D1
19208:  28  04  83  5F  18  04
19214:  47  7B  90  5F  E1  C1
19220:  C5  E5  21  80  40  23
19226:  23  10  FC  73  23  72
19232:  E1  C1  10  CA  CD  E9
19238:  4B  C9  06  04  21  A3
19244:  40  C5  E5  06  0B  CD
19250:  E3  40  E1  77  23  C1
19256:  10  F3  C9  1B  00  1D
19262:  38  39  00  27  26  39
19268:  38  32  26  33  00  10
19274:  2A  33  39  2A  37  00
19280:  1D  00  39  34  00  27
19286:  11  04  00  1E  33  29
19292:  04  00  1F  37  29  04
19298:  00  20  39  2D  02  00
19304:  21  02  00  22  02  00
19310:  23  02  00  24  02  00
19316:  25  02  00  1D  1C  02  00  1D
19322:  1D  20  35  37  2A  38
19328:  38  10  38  11  26  34
19334:  37  2A  38  1A  10  35
19340:  11  31  26  3E  00  34
19346:  37  10  29  2A  11  2A
19352:  31  26  37  2A  87  01
19358:  D0  00  B6  00  FD  00
19364:  F9  01  B3  01  6F  01
19370:  40  02  24  02  E6  01
19376:  10  01  3E  01  32  09
19382:  41  AF  32  05  41  01
19388:  01  00  C9  CD  27  41
19394:  CD  F9  40  21  3B  4B
19400:  3E  01  CD  10  41  E1
19406:  D1  F1  F5  D5  E5  FE
19412:  0B  28  0F  A7  FE  08
19418:  36  02  2B  2B  2B  2B
19424:  2B  3E  01  CD  10  41
19430:  C3  58  4A  2A  0C  40
19436:  01  6F  01  09  22  8A
19442:  40  01  18  00  09  22
19448:  96  40  CD  D3  40  AF
19454:  32  87  43  C9  F1  C3
19460:  83  4A  CD  F9  40  C3
```

```
17042:    ..  ..  ..  ..  ..  ..
17048:    06  08  21  80  40  36
17054:    00  23  10  FB  11  A3
17060:    40  06  04  D5  21  06
17066:    49  C5  3E  01  CD  10
17072:    41  E5  CD  6F  40  A7
17078:    FE  28  38  1F  CD  27
17084:    41  CD  F9  40  21  08
17090:    49  3E  01  CD  10  41
17096:    E1  C1  78  FE  04  20
17102:    04  C5  E5  18  DF  2B
17106:    2B  2B  2B  18  D2  E1
17114:    C1  D1  D6  1C  12  13
```

```
17654:    45  2A  0C  40  3A  B2
17660:    40  FE  01  28  05  01
17666:    87  01  18  03  01  6D
17672:    01  09  06  03  7E  FE
17678:    34  20  02  18  0B  23
17684:    10  F6  E1  C3  E7  45
17690:    C1  C1  C1  E5  CD  CE
17696:    46  C5  CD  F9  40  C1
17702:    79  CD  04  41  D5  23
17708:    23  7E  47  23  7E  CD
17714:    8E  43  47  3A  B4  40
17720:    A7  B8  38  04  06  09
```

```
18260:    CD  5E
18266:    3E  9C
18272:    80  20
18278:    C9  01
18284:    40  23
18290:    02  36
18296:    20  F3
18302:    36  80
18308:    0D  01
18314:    C2  49
18320:    6B  0B
18326:    F5  08
```

```
3 REM
100 CLEAR
200 PRINT AT 0,
400 DIM E$(250)
410 DIM D$(250)
415 DIM M$(200)
420 DIM C$(32)
430 LET T$=""
440 LET F=0
450 LET R$="INT
460 LET M$(1 TO
234? YORKER1234?
ST BALL1234? GOO
IN1234? FAST BAL
234? CHINAMAN123
34?BOULED1234?L.
234?RUN OUT1234"
470 GOTO 900
500 LET X=1
510 LET T=VAL R
520 LET O$=("AU
)+("PAKISTAN" AN
AND T=4)+("W.IND
530 LET F$="ENG
540 RETURN
600 LET I$=INKEY
610 IF I$="" TH
620 RETURN
900 PRINT AT 5,
O CHOOSE THE TWO
LL PLAY ? (Y OR
910 GOSUB 600
920 CLS
930 IF I$="N" T
935 IF I$<>"Y" T
940 PRINT ,"YO
945 INPUT F$
950 PRINT F$
955 PRINT ,"PL
960 INPUT O$
970 GOTO 1000
990 GOSUB 500
1000 CLS
1010 PRINT F$;"
1020 PRINT AT 3,
LAYERS"
1030 FOR I=1 TO
1040 PRINT AT 4,
"   NAME ?"
1050 INPUT N$
1060 PRINT AT 4,
1070 LET N$=CHR$
1080 IF F=1 THEN
1090 PRINT ,,"SE
TTING"
1100 PRINT TAB 1
1110 PRINT TAB 1
1120 PRINT TAB 1
1130 PRINT ,,TAB
R 1 TO 4"
1140 GOSUB 600
1150 IF CODE I$>
3 THEN GOTO 1175
1160 PRINT AT 10
TER NUMBER 1 TO
1170 GOTO 1140
1175 LET N=VAL I
1180 FOR J=1 TO
1190 IF F=1 THEN
O*4)
1200 LET X=1+4*(
1205 LET Y=VAL R
1210 LET N$=N$+C
1220 NEXT J
1230 LET T$=T$+N
1240 FOR J=3 TO
1250 PRINT AT J,
1260 NEXT J
1270 NEXT I
1280 IF F=1 THEN
1290 LET E$(1 TO
1300 PRINT AT 3,
O NAME THE"
1310 PRINT TAB 4
(Y OR N)"
1320 GOSUB 600
1330 IF I$="N" T
1340 IF I$<>"Y" T
1345 PRINT AT 3,
1350 PRINT AT 3,
1360 LET F=1
1370 LET T$=""
```

Machine code listing (partial, left edge cut off)

```
     47  77  23  23
18   E1  7E  FE
02   C6  1C  3C
D5   02  2A  0C
7E   FE  76  28
00   0B  76  B1
C9   21  74  47
CD   67  47  01
CD   F5  08  11
01   05  00  CD
01   01  05  CD
11   C7  49  D5
```

```
18866:  00  37  3A  33  38  00
18872:  09  33  2A  3D  39  00
18878:  34  3B  2A  37  B9  B4
18884:  B9  A6  B1  A7  A6  B9
18890:  B8  B2  A6  B3  A6  B4
18896:  B7  BC  B0  B8  B4  BB
18902:  AA  B7  B8  A7  B4  BC
18908:  B1  AA  B7  AD  B4  B2
18914:  AA  A6  BC  A6  BE  80
18920:  B9  AA  A6  B2  80  80
18926:  80  80  80  AB  B4  B7
18932:  19  35  37  2A  38  38
```

```
19472:  0E  4A  3A  B1  40  3D
19478:  32  10  4A  21  82  40
19484:  06  3C  36  00  23  10
19490:  FB  3E  01  32  09  41
19496:  32  87  43  AF  32  05
19502:  41  3E  0C  32  05  44
19508:  C9  1B  1B  1B  1B  1B
```

---

2. (BASIC)

Left column (partial, left edge cut off)

```
10; "TEST MATCH"

(X+RND*6)"
)="■ SLOW BALL1
 BOUNCER1234■ FA
GLIE1234■ LEG SP
L1234■N INSWING
4£N OFF BREAK 12
6.W.1234■CAUGHT1

$
STRALIA" AND T<3
0 T=3)+("INDIA"
IES" AND T>4)
LAND"

Y$
EN GOTO 600

0;"DO YOU WANT T
    TEAMS THAT WI
N)"

HEN GOTO 990
THEN GOTO 900
UR TEAM IS ?"

AYING AGAINST ?"

   "U"  ";O$
0;"NAME ";F$;" P
11
0;"PLAYER NO.";I

13;N$;"  "
(LEN N$)+N$
GOTO 1180
ELECTED FOR: 1.BA
4;"2.BOWLING"
4;"3.FIELDING"
4;"4.ALL ROUNDER
6;" INPUT NUMBE

2S AND CODE I$<3

0;"PLEASE RE-EN
"
$
$
11
LET N=INT (1+RN
U=N)
$
HR$ Y
$
11
0;C$

GOTO 1450
)=T$
4;"DO YOU WANT T
;O$;" PLAYERS ?

HEN GOTO 1400
THEN GOTO 1320
0;C$;AT 4,0;C$
0;O$;" TEAM"
```

Middle column

```
1380 GOTO 1030
1400 LET I$="ABCDBACDCADODIGAEFN
AFICAGOLAHOTIINGOJOPPKAND"
1405 LET F=1
1410 LET T$=""
1420 PRINT AT 18,0;"SELECTING ";
O$;(""S" AND O$(1)<>"W")+" TEAM
"
1430 FOR I=1 TO 44 STEP 4
1440 LET N$="■"+I$(I TO I+3)
1445 GOTO 1180
1450 LET D$(1 TO )=T$
1460 LET T$=""
1470 LET N$=""
1500 CLS
1510 PRINT TAB 6;"CALL HEADS OR
TAILS"
1520 PRINT TAB 9;"(PRESS H OR T)
1530 GOSUB 600
1540 IF I$="H" OR I$="T" THEN GO
TO 1560
1550 GOTO 1530
1560 PRINT TAB 14;I$
1570 PRINT AT 8,14;"■"
1580 PRINT TAB 13;"■"
1590 PRINT TAB 12;"■"
1600 PRINT TAB 13;"■"
1610 PRINT TAB 14;"■"
1615 LET N=INT (1+RND*2)
1620 FOR I=1 TO 20
1630 PRINT AT 10,14;"H"
1635 LET C=RND*RND
1640 PRINT AT 10,14;"T"
1650 NEXT I
1655 PRINT AT 10,14;("H" AND N=1
)+("T" AND N=2)
1660 LET C=0
1663 LET AT=0
1664 LET HT=0
1667 LET L=0
1666 LET M=0
1670 IF (I$="H" AND N=1) OR (I$=
"T" AND N=2) THEN LET C=1
1680 PRINT AT 14,10;"YOU "+("WON
" AND C=1)+("LOSE" AND C=0)
1690 IF C=0 THEN GOTO 1770
1700 PRINT ,,TAB 6;"CHOOSE TO BA
T OR FIELD"
1710 PRINT TAB 10;"PRESS B OR F"
1720 GOSUB 600
1730 IF I$="B" THEN GOTO 3000
1740 IF I$="F" THEN GOTO 2000
1750 GOTO 1720
1770 LET R=RND
1780 PRINT ,,TAB 10;"WE "+("BAT"
 AND R>=.5)+("FIELD" AND R<.5)
1785 FOR I=1 TO 20
1787 NEXT I
1790 IF R<.5 THEN GOTO 3000
2000 CLS
2010 PRINT AT 0,6;F$;" ""U"" ";C
$
2020 PRINT ,,"  MOVE THE * BY TH
E ARROW KEYS  PRESS ""P"" TO PLA
CE A FIELDER"
2030 PRINT "(FIELDERS ARE O,BATS
MEN X AND   THE BOWLER IS *)"
2040 PRINT ,," ONCE 10 MEN ARE
POSITIONED    (11TH MAN TAKES BO
WLING POS.)  PRESS ""S"" AND
THEN ENTER YOUR BOWLING ORDER."
2050 PRINT ,," AFTER EACH OVER
YOU CAN CHANGETHE POSITIONS OR B
OWLING ORDER"
2057 PRINT ,," TO REPOSITION,MO
VE THE * OVER THE MAN (O) THEN M
OVE THE * TO  THE NEW PLACE."
2060 PRINT AT 21,0;"PRESS NEWLIN
E"
2070 INPUT I$
2075 CLS
2076 PRINT ,,"IF YOU POSITION LE
SS THAN 10 MEN(DUE TO PRESSING P
 TWICE IN THE SAME POSITION),THE
N AFTER YOU    ENTER 4 BOWLERS,PR
ESS S AND THENPRESS E. PRESS BRE
AK AND TYPE    GOTO 2000,NEWLINE
"
2077 PRINT AT 21,0;"PRESS NEWLIN
E"
2078 INPUT I$
2079 CLS
```

Right column

```
2080 IF HT=0 THEN POKE 16561,1
2085 IF HT=0 THEN POKE 16566,0
2086 IF HT=0 THEN POKE 16567,0
2090 IF M=1 THEN POKE 16561,PEEK
 16561-1
2100 LET X=USR 19468
2110 LET L=USR 16778
2120 LET AT=1
2130 IF L=0 THEN GOTO 5000
2140 LET AS=PEEK 16566+256*PEEK
16567
2150 LET AW=PEEK 16561-(L<>1)-(2
 AND L=1)
2160 IF HT=1 THEN GOTO 4000
2170 CLS
2180 PRINT AT 5,0;O$;" SCORED ";
AS;" FOR ";AW
2190 IF L=1 THEN PRINT AT 6,10;"
(DECLARED)"
2200 PRINT AT 21,0;"PRESS NEWLIN
E"
2210 INPUT I$
3000 CLS
3010 PRINT TAB 6;F$;" ""U"" ";O$
3020 PRINT ," ENTER YOUR BATTI
NG ORDER WHEN ASKED AND THEN WAT
CH YOUR TEAM  PLAY"
3030 PRINT AT 21,0;"PRESS NEWLIN
E"
3040 INPUT I$
3050 IF L=1 THEN POKE 16561,PEEK
 16561-1
3055 IF AT=0 THEN POKE 16566,0
3056 IF AT=0 THEN POKE 16567,0
3060 IF AT=0 THEN POKE 16561,1
3065 CLS
3070 LET M=USR 18968
3082 LET HT=1
3090 IF M=0 THEN GOTO 5000
3100 LET HS=PEEK 16566+256*PEEK
16567
3110 LET HW=PEEK 16561-(M<>1)-(2
 AND M=1)
3120 IF AT=1 THEN GOTO 4000
3130 PRINT AT 5,0;F$;" SCORED ";
HS;" FOR ";HW
3140 IF M=1 THEN PRINT AT 6,10;"
(DECLARED)"
3150 PRINT AT 21,0;"PRESS NEWLIN
E"
3160 INPUT I$
3170 GOTO 2000
4000 CLS
4010 PRINT F$
4020 PRINT AT 2,0;HS;" FOR ";HW
4030 PRINT AT 11,0;O$
4040 PRINT AT 13,0;AS;" FOR ";AW
4050 PRINT AT 20,0;(O$ AND AS>HS
);(F$ AND HS>AS);" WIN BY ";ABS
(AS-HS);" RUNS"
4060 PRINT AT 5,16;"O";AT 6,15;"
■■ ";AT 7,16;"▀";AT 8,15;" ▀ ■
4070 LET V=0
4080 FOR I=12 TO 16
4090 PRINT AT V,I;".."
4100 LET V=V+1
4110 PRINT AT V-1,I;"  "
4120 NEXT I
4130 PRINT AT 5,16;" ";AT 6,15;"
 O";AT 7,16;"■";AT 8,15;"▀▀▀▄
4140 PRINT AT 4,16;" ";AT 3,17;"
.";AT 3,17;" ";AT 2,18;".";AT 2,
18;" "
4150 FOR I=6 TO 50
4160 NEXT I
4170 GOTO 4060
5010 FOR I=1 TO 20
5020 PRINT AT I,8;"GAME ABANDONE
D"
5030 LET X=RND
5040 PRINT AT I,0;C$
5050 NEXT I
5060 GOTO 5010
```
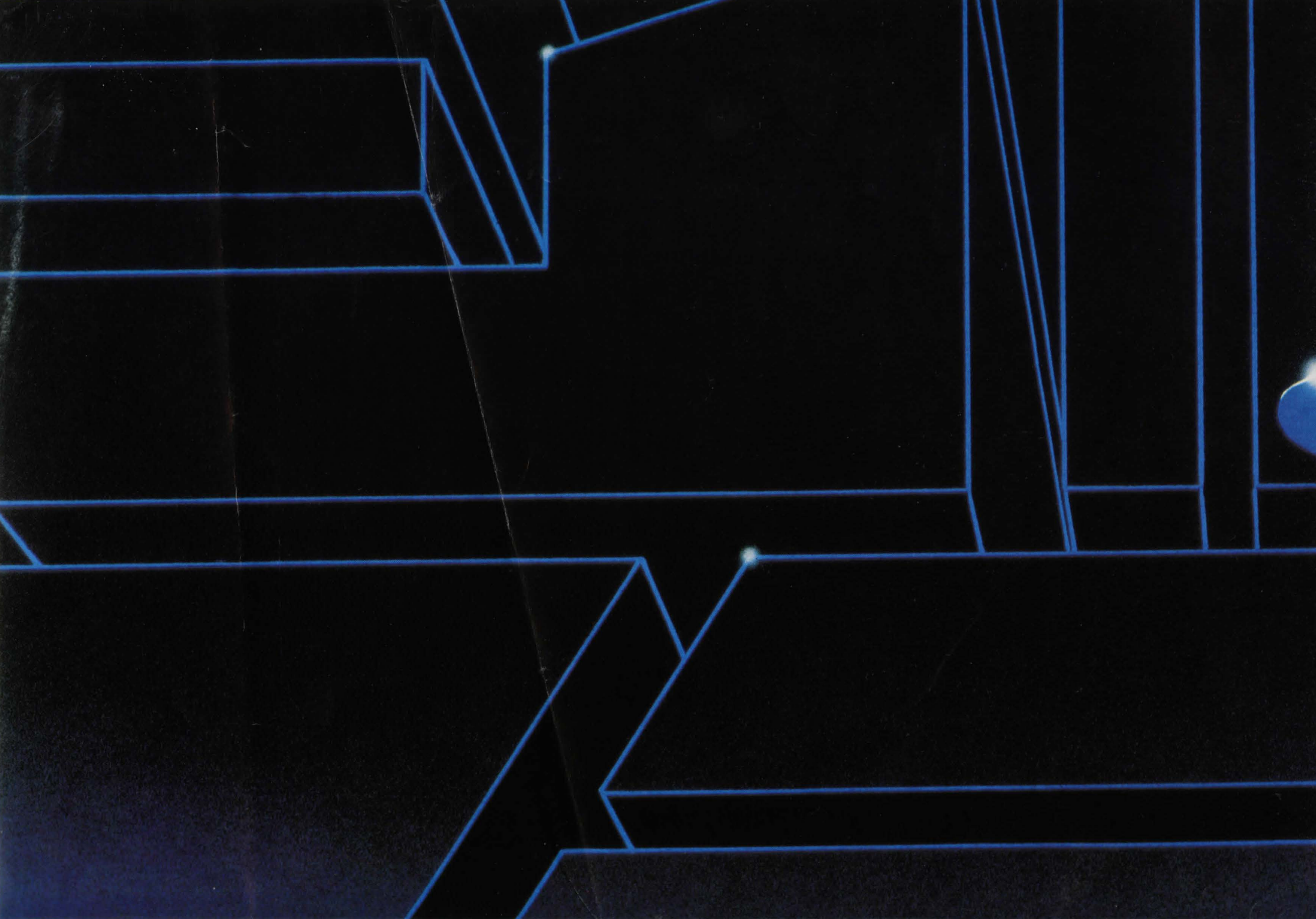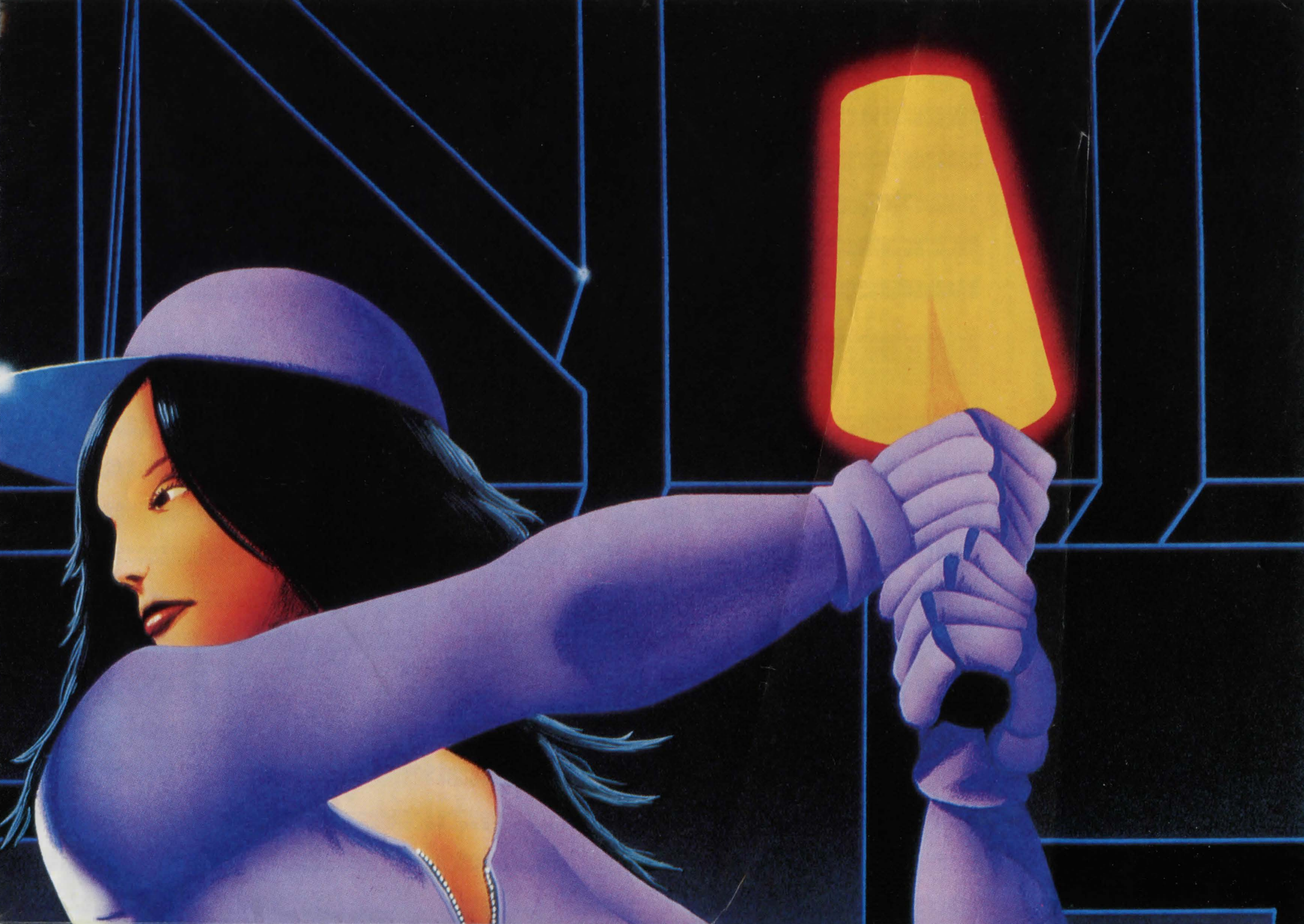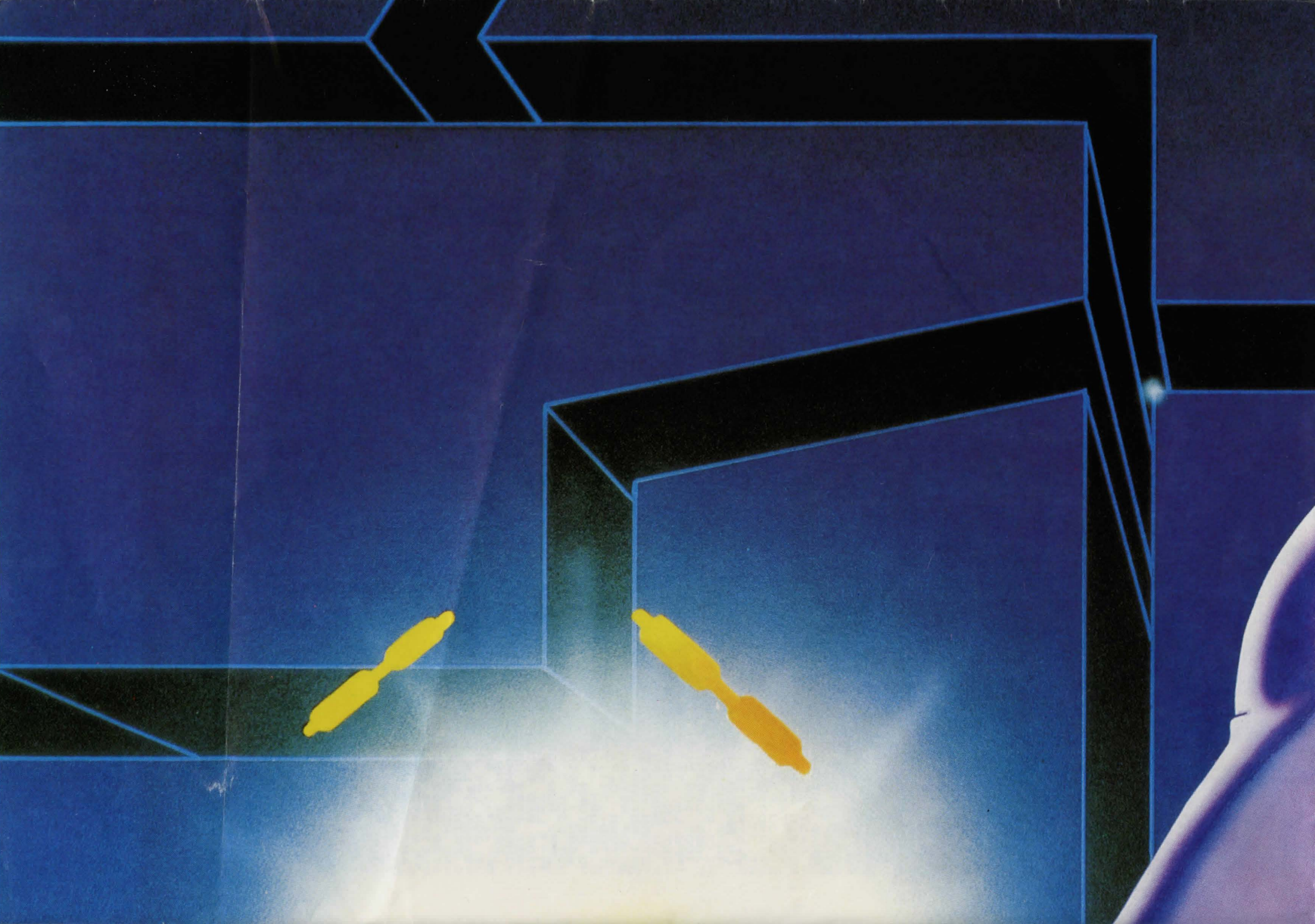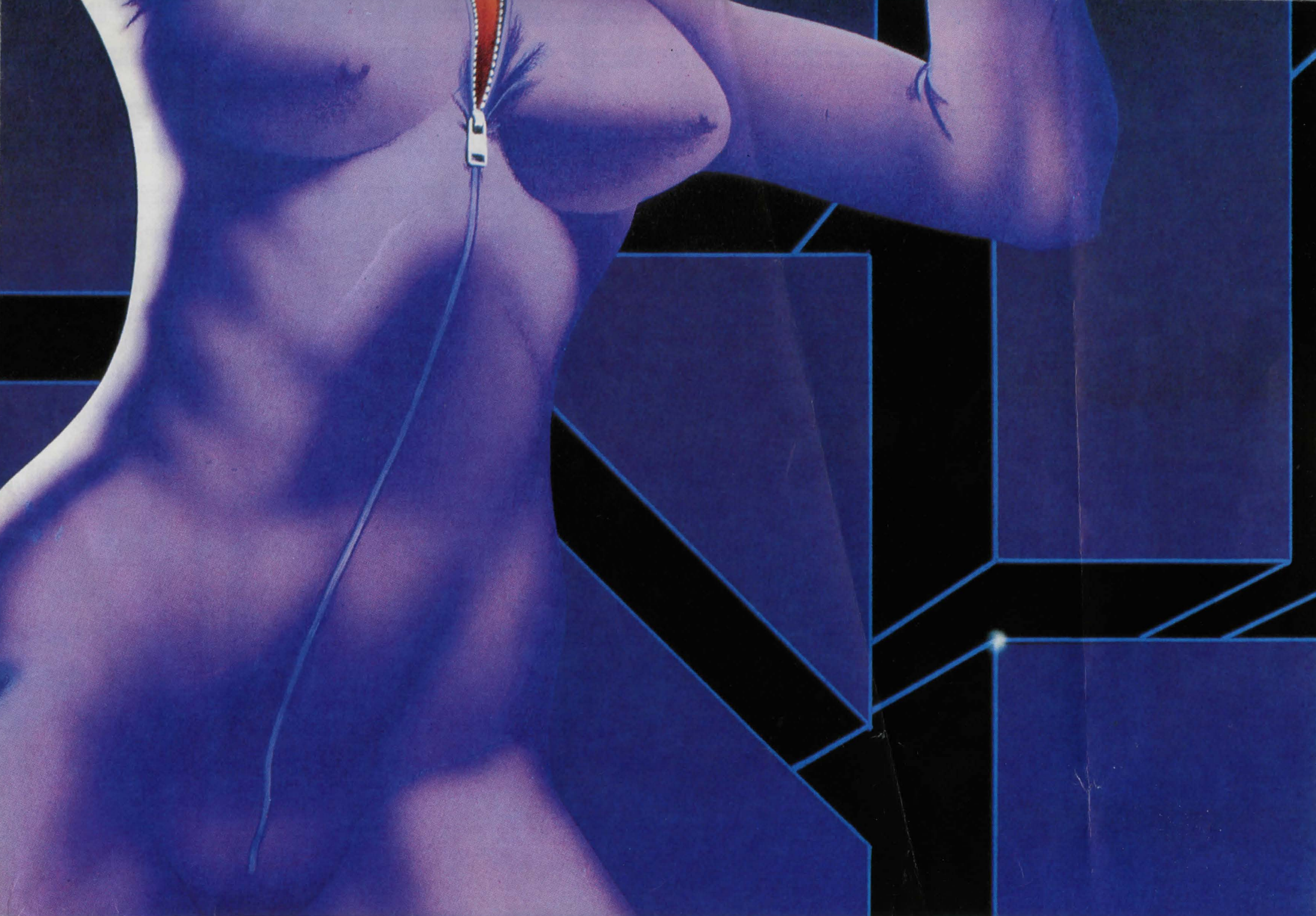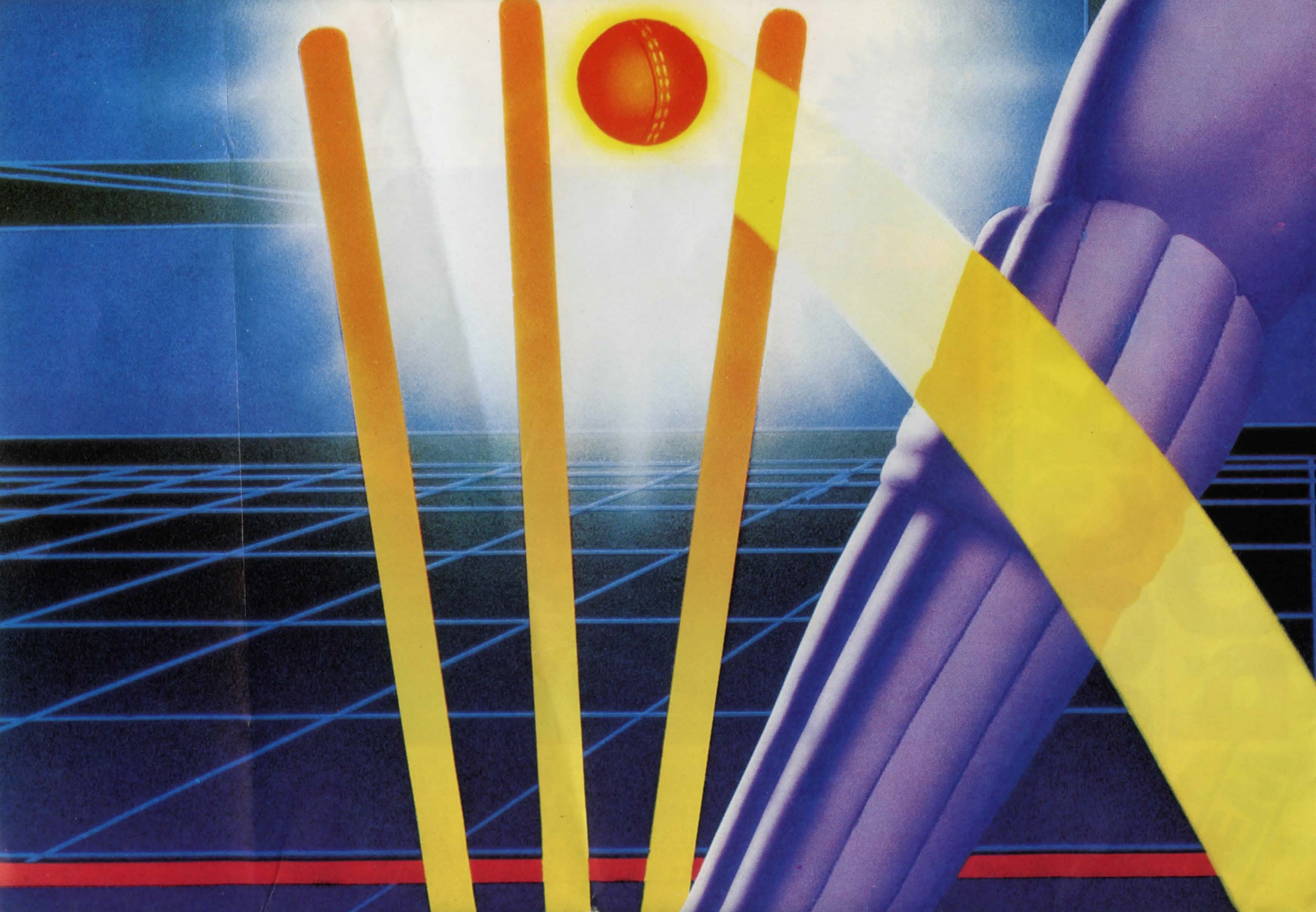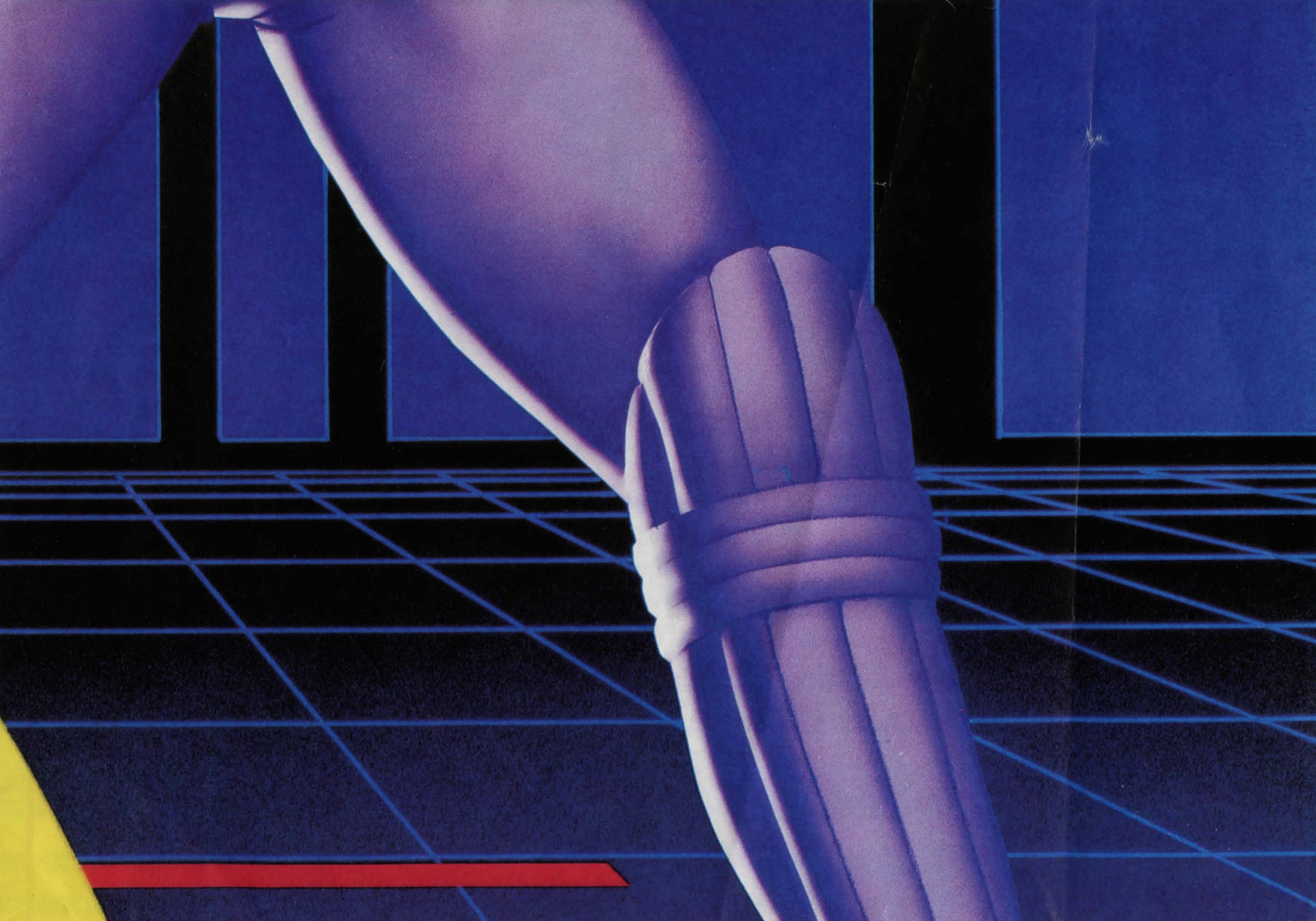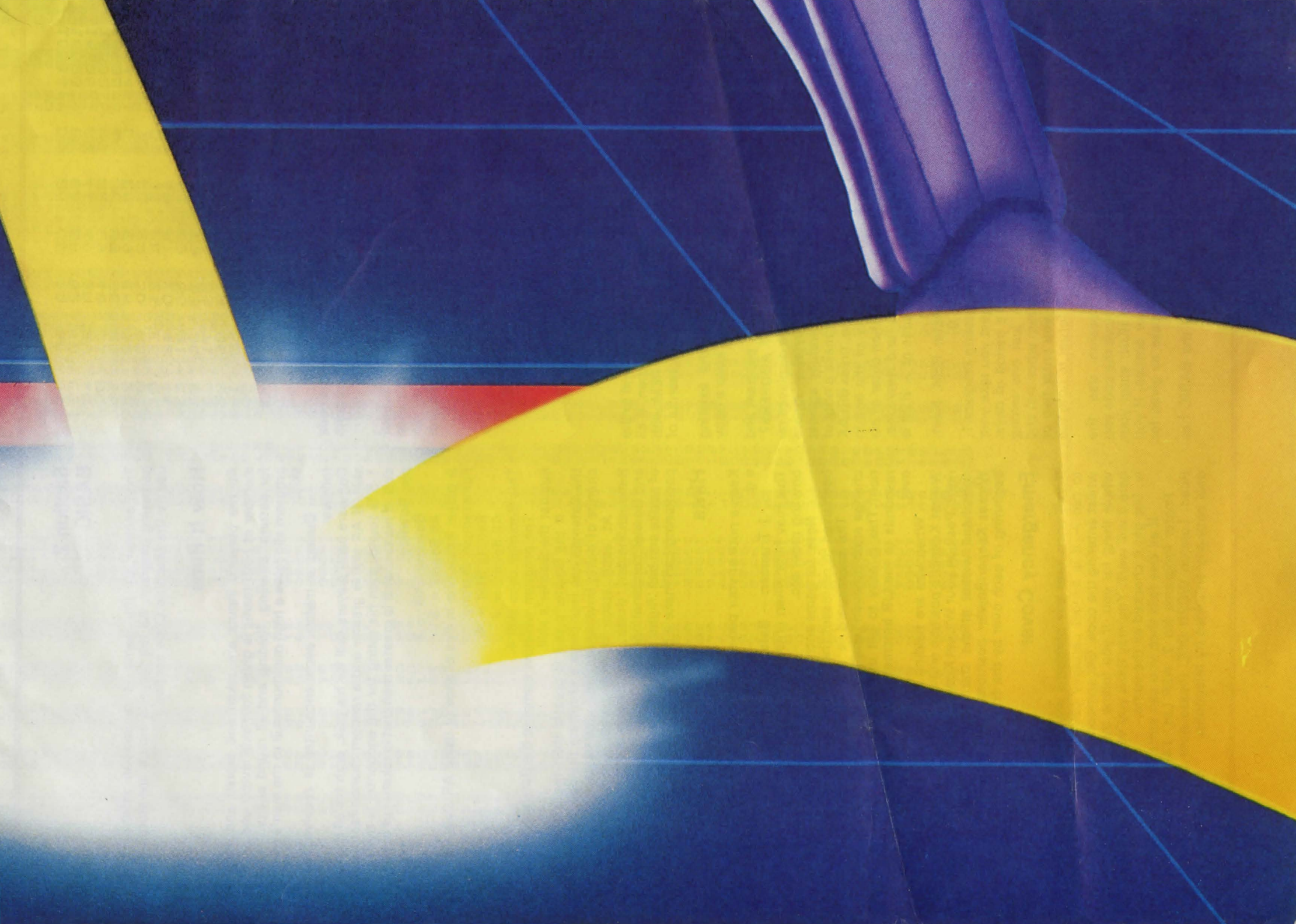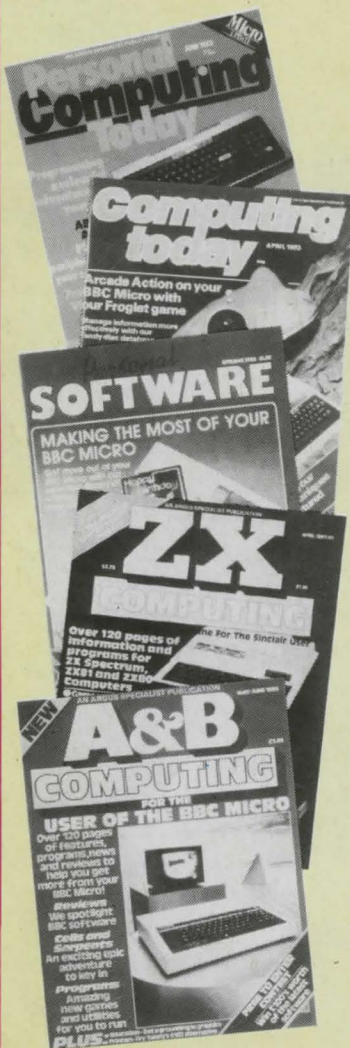
Test Match

Test Match gives you the chance to lead your country's team into the field for a one-day International — with the ZX81 doing all the work!
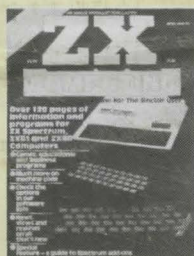
You will choose the teams to play (from a full test list) and then act as the entire board of selectors and pick the sides! You can type in the latest test teams straight from the newspapers if you like — and see what you can do to improve on the results.

Once on the field you take the Captain's job — and it's harder than you think. Place your fielders, choose the bowlers, watch for the spots, try and control the run rate . . . it's all here, with the ZX umpire to run things for you and ensure a straight match!

A highly realistic scoreboard is provided for you to keep track of the games progress whilst in play and the match itself is portrayed, ball for ball, in full graphics on the screen. The situation gets really tense when your side is batting, since like all Captains in that position, all you can do is watch helplessly as the wickets fall . . . with hopefully a few runs being added in between. You simply set the batting order and then sit back to watch as the fate of the ZX Ashes is decided!

Test Match is an exciting 16K ZX81 program (rampack needed) written in both machine-code and BASIC. Full details on how to enter and run the program are given inside — even a simple-to-use machine code loader is included! The program itself has been exhaustively tried and tested to ensure that you will encounter little difficulty with the listing, and the game has been carefully balanced to guarantee an exciting challenge to the player. Even losing the toss can affect the outcome!

For all those who always thought they could better Botham, this is your chance . . .