Mephisto®
milano

Hegener + Glaser AG

Dear chess player,

Welcome to the ever-growing ranks of MEPHISTO chess computer owners. We are confident that your new acquisition will give you a lot of pleasure and satisfaction.

Your MEPHISTO is a high-quality product made in Germany. It is extremely user-friendly and offers you a large number of special features. This makes it the ideal tournament and training partner for every chess enthusiast.

In order to enable you to make the most of your computer right from the beginning, we have produced this manual, which will allow you to master the basic operating principles in the shortest possible time. The individual sections can be read independently of one another, so the manual does double duty as a tutorial as well as a work of reference.

We recommend that you go through the entire manual once to get an overview of the possibilities that your computer has to offer. Later on, when you come across some detail that requires explanation, you will only need to look up the sections dealing with your specific problem.

And now we wish you many hours of fun and excitement with your new electronic chess partner.

PART 1: YOUR FIRST GAME AGAINST THE COMPUTER

1. General remarks

Your MEPHISTO chess computer communicates with you in an extremely simple and logical fashion. Using only 8 operating keys, you can set a large number of parameters and gain access to a wealth of information. In addition, you will be assisted by a 32-character dot matrix display, 6 function or piece symbol LEDs (the little red lamps located above the keys) and 16 coordinate LEDs (eight each along the left edge and the lower edge of the chess-board).

In the first part of this manual, we will give you all the information you need to start playing games against your computer right away. Part 2 contains a more detailed discussion of every feature that your computer offers.

2. Installation

Your MEPHISTO can be powered in two ways: either by batteries or by means of a mains adaptor.

To use the **adaptor**, push the plug at the end of the adaptor cable into the socket on the computer and connect the adaptor itself to the mains power supply.

To install **batteries**, open the battery compartment that is located in the upper right part of the computer's surface and insert 6 AA type batteries (1.5 volts, preferably of the alkaline variety). You may also use rechargeable batteries, but please note that these cannot be recharged while installed in the computer. A suitable external recharging device is required.

Please help protect our environment! Don't throw your spent batteries into the nearest dustbin but see to it that they are disposed of in an adequate manner.

As soon as you have supplied electrical power to your computer in either of the two ways described above, you can switch it on by sliding the ON/OFF switch at the back of the unit to the ON position. The following message will appear in the display window:

```
Mephisto Milano
by Ed Schröder
```

Originally, your MEPHISTO's display is set to the German language. You can change this by means of the following procedure:

Press the key labelled FUNCTION. The following display will appear:

```
-- Sprache --
-- Deutsch --
```

Press the key labelled ENTER. The display will change to "Language English".

Press the CLEAR key to leave Function Mode. From now on, all the computer's messages will be displayed in English. If you make a habit of pressing the MEMORY key before switching the computer off (see section 7.7), this setting will remain in effect even between sessions. Otherwise, you will have to reset the computer to the English language every time you switch it back on.

3. Moving the pieces

3.1 Starting a game

Your MEPHISTO has a so-called **"touch sensory board"**, which means that you have to inform the computer about your moves by pressing down on the corresponding squares of the chessboard.

Let's assume you wish to open the game with the move E2-E4. Briefly press the white E2 pawn down on its square. A tone signal will sound, and the border LED located below the E-file as well as the one to the left of the 2nd rank will light up. This means that the computer has registered E2 as the **"from" square** of your move.

Now place the pawn on its **"to" square**, i.e. E4, pressing it down briefly on that square. MEPHISTO will sound another tone signal to confirm that it has registered your move and immediately answer with a move of its own. This answering move will appear in the display window, e.g.:

```
E7-E5
Book Move
```

In the case of a pawn move, only the coordinates of the move will be shown, otherwise a symbol denoting the type of piece being moved will be displayed together with the coordinates.

The message "Book Move" implies that MEPHISTO has not calculated its answering move itself but rather fetched it from its large store of opening moves (its "book"). Over the years, chess theory has singled out certain sequences of moves as being particularly efficient in the opening phase of the game, thereby creating a large number of opening systems. Many of these variations have their own names such as "Spanish Opening" (or Ruy Lopez), "French Defence" etc.

As soon as your MEPHISTO recognizes a certain opening system, it will show its name in the display window. For example, its answer to E2-E4 might look like this:

```
C7-C5
Sicilian Defence
```

The program also recognizes transpositions of moves. This means that MEPHISTO may sometimes leave a book variation, calculate a few moves on its own and then return to playing a stored line.

Now you have to execute the move indicated by the computer on the chessboard. To assist you in this, MEPHISTO will first light up the border LEDs corresponding to the **"from" square** of its move. In the case of E7-E5, the LEDs for the E-file (below) and the 7th rank (to the left) will light up first. At the **intersection** of these two lines you will find the square (in this case, E7) that the computer wishes to move a piece from.

Briefly press the piece down on this square. A tone signal will sound, and the border LEDs will change to indicate the **"to" square** of the computer's move (in our example, E5). Place the piece on its destination square, pressing down briefly on that square as well. Again a tone signal will sound, and the display will switch to showing the chess clocks for both sides. In addition, a little white square will be displayed in the upper left corner of the window to indicate that it is now your turn again to make a move for White.

While the computer is still playing from its Book, you can influence its choice of opening moves. If the answering move it displays is not to your taste, don't execute it on the board but press CLEAR instead. If there are alternative moves in the computer's memory, the display will switch to a different reply. You can now reject this move, too, by pressing CLEAR again or else accept it by executing it on the board.

As long as the computer fetches its moves from its opening library, answering instantly, no time is registered on its clock. As soon as the program leaves its opening book and starts calculating on its own, the display will switch to showing the chess clocks. In addition, in the upper left corner of the display window the symbol for White or Black will start flashing, indicating the colour for which the computer is currently calculating a move.
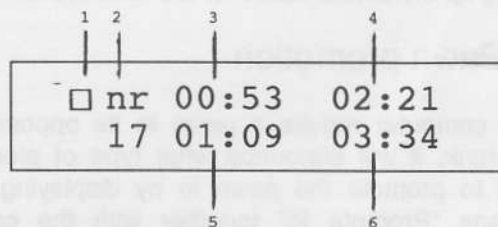
After its allotted thinking time has elapsed, the computer will sound a tone signal to inform you that it has found a move and indicate the move both in the display window and on the board (by means of the border LEDs).

When you first switch it on, the computer is automatically set to an average thinking time of 10 seconds. How you can change the playing level is described in chapter 9 ("Level Mode").

3.2 The chess clocks

While it is your move or while the computer is calculating, the display will automatically show the chess clocks, the side having the move and a move counter.

The chess clocks give four different readings: for either side, the time spent on the current move as well as the total time taken so far are displayed.

```
 1  2        3          4
 |  |        |          |
  □ nr  00:53    02:21
    17  01:09    03:34
                 |          |
                 5          6
```

1) Side to move (white or black square)

2) Move counter

3) Total time computer (hours/minutes)

4) Move time computer (minutes/seconds)

5) Total time player (hours/minutes)

6) Move time player (minutes/seconds)

3.3 Captures

First remove the piece you wish to capture from the board (without pressing down), then execute your move as usual (pressing down on the "from" and "to" squares).

If, when displaying its move, the computer indicates a "to" square that is already occupied, this means it intends to capture the piece on that square. Here, too, you should remove the captured piece before you press the moving piece down on its destination square.

3.4 En passant

This move is executed like any regular move (pressing down on the "from" and "to" squares). However, in the case of an en passant capture the computer will light up the border LEDs for the square on which the captured pawn is located, to remind you that it must be removed from the board. Remove the pawn from the board, pressing down briefly on its square to communicate your action to the computer.

If you are unsure whether an en passant capture is possible in a specific position, please refer to the relevant chapter in any introductory chess course.

3.5 Castling

In keeping with the Laws of Chess, you must always move the king first when castling. After you have made the king move, the computer will remind you of the second part of the castling process by lighting up the border LEDs for the rook move.

3.6 Pawn promotion

If the computer moves a pawn to its opponent's back rank, it will announce what type of piece it wants to promote the pawn to by displaying the message "Promote to" together with the corresponding piece symbol. Execute the move on the board and replace the pawn with the appropriate piece (usually a queen), without pressing down on the promotion square again.

If you have moved a pawn to the computer's back rank, MEPHISTO will prompt you for the type of piece you want to promote the pawn to:

```
    Promote to ?
```

At the same time, the LEDs above the symbol keys for knight, bishop, rook and queen will start flashing. To communicate your choice to the computer, press the corresponding symbol key. Exchange the pawn for the desired piece without pressing down on the promotion square again.

3.7 Illegal moves

If you make a move that is contrary to the Laws of Chess, MEPHISTO will sound an error warning and display the following message:

```
    --Illegal Move--
```

Take back the illegal move by executing it **in reverse order**, i.e. by first pressing down on the "to" square and then on the "from" square of your move. MEPHISTO will assist you in this by lighting up the border LEDs for the squares in question. Then continue the game with a legal move.

3.8 Check, checkmate

If the computer's move puts your king in check, it will remind you of this by displaying the word "Check" next to the coordinates of its move.

```
    E4-E3   Check
```

If the move checkmates your king, then, after the move has been executed on the board, MEPHISTO will show the message "Checkmate !" in the display window.

3.9 Mate announcement

If in the course of its analysis MEPHISTO finds a forcing sequence of moves leading to mate, it will announce this in the display window as follows:

```
    C7-C5
    Mate in 03 Moves
```

If the computer recognizes that it cannot avoid being checkmated by you, it will announce this in the same fashion but with a minus sign preceding the number of moves to mate, e.g. "Mate in -4 Moves".

3.10 Stalemate, draw

If the computer cannot move because you have stalemated it, it will display the message "Stalemate !" instead of a move.

Draws are claimed in the display window together with information on the kind of draw being claimed. The Laws of Chess give the following reasons for claiming a draw:

o Insufficient mating material: display reads, "Draw - Material"

o Threefold repetition of the same position: display reads, "Repetition - 3"

o Draw by the 50-move-rule: display reads, "Draw 50 Moves"

3.11 Resignation

If in the course of its analysis MEPHISTO realizes that its position is hopeless, it will offer to resign from the game by displaying a message like the following:

```
H7-H5
I resign !
```

If you prefer to go on with the game, press CLEAR and continue playing. But bear in mind that MEPHISTO will offer to resign only once in the course of a game.

3.12 Starting/interrupting the analysis process

Pressing the ENTER key has one of two effects: while it is your turn to move, it will make the computer start calculating the next move in your stead. Otherwise, it will force the computer to break off its current calculating process and play the best move found so far.

3.13 New game

To start a new game, press the ENTER and CLEAR keys **together**. A tone signal will sound and the message "Mephisto Milano by Ed Schröder" will reappear in the display window. All previous settings (such as the playing level) will be retained. You may now set the pieces up on the board in the initial position and start a new game.

PART 2: ADVANCED FEATURES

In the first part of this manual we gave you all the information you need to play a game against your MEPHISTO. Obviously, your computer can do a lot more than just accept or calculate moves. Its numerous and, in some cases, unique possibilities will be discussed in detail in the second part of this manual.

4. User interface

MEPHISTO is operated by means of 8 keys: 6 function or piece symbol keys and 2 input keys. Each of the function keys is associated with a special operating mode. These modes are activated by pressing the corresponding key. The following modes (and associated keys) are available:

o Training Mode (TRAINING)
o Information Mode (INFO)
o Memory Mode (MEMORY)
o Position Mode (POSITION)
o Level Mode (LEVEL)
o Function Mode (FUNCTION)

Once you have activated one of these modes, the LED above the associated key will light up to remind you of the mode you are currently operating in. Pressing the CLEAR key will leave the special mode and return you to the normal playing mode.

5. Training Mode

5.1 Examining the Opening Book (width)

If after switching your computer on you press the key labelled TRAINING (the LED above the key will light up), MEPHISTO will allow you access to its opening library or "book".

```
        E2E4
   E7E5 E7E6 C7C6
```

On the upper line you can see the move E2E4, a move for the side that is currently on move, i.e. White. On the lower line you can see three of Black's possible answers to this move: E7E5, E7E6 and C7C6. A maximum of three moves can be displayed, even if there are more moves available.

If there are fewer than three moves available, then the corresponding space is left empty.

If you now want to know what other opening moves besides E2E4 MEPHISTO has in its book, press the ENTER key. The upper line of the display will change to D2D4; at the same time, the answering moves on the lower line will also change. Every time you press the ENTER key, another of the opening moves available for White will appear in the display together with the possible answers. If there are no further moves stored in the computer's library, the display will switch back to E2E4.

You will observe that some moves are displayed in capitals, others in small letters, e.g.:

```
        g1f3
   D7D5
```

MEPHISTO's opening library distinguishes between active and passive moves. Active opening moves are moves that the program will play itself when it has the move. **Active moves** are always displayed in **capitals**. Passive moves, on the other hand, are moves that MEPHISTO knows how to react to if they are played by the other side but will not play itself when it has the chance, as they might lead to positions the program does not feel at home in. **Passive moves** are always displayed in **small letters**.

You can leave Training Mode at any time by pressing CLEAR. The display will switch back to chess clock mode. Even when a few moves have already been played in a game, you can still activate Training Mode to have a look at what variations are stored in the computer's book and even use these as a hint on how to continue.

The more moves have already been played, the fewer continuations will be stored in the computer's book. If after pressing ENTER in Training Mode the display doesn't change, this means that only the one continuation that is currently displayed is available. If there aren't any more moves in the computer's book, the following message will appear:

```
   --No Book Move--
   -- available --
```

5.2 Examining the Opening Book (depth)

If you want to know how many moves of a particular opening line your MEPHISTO has in its library, proceed as follows:

After switching your computer on, press the key labelled TRAINING to activate Training Mode. The display will show the move E2E4 in the upper line and the answering moves for Black in the lower line as described in section 5.1.

Now execute the move E2E4 on the chessboard. As soon as you have pressed the piece down on its "to" square, the display will change to indicate one of the possible answering moves for Black (in this case, E7E5) on the upper line. Execute this move on the board, too. Again the display will change, this time to indicate a possible answering move for White.

You can continue this procedure until you have reached the end of the line as it is stored in the computer's book. You will then get the message, "No Book Move available".

You can, of course, leave Training Mode at any time by pressing CLEAR and start playing against the computer from the position on the board and with the colour that has the move.

5.3 Examining opening variations

In order to be able to probe your computer's opening library to the fullest extent, you have to combine the two procedures described above.

After switching the computer on, activate Training Mode by pressing the key labelled TRAINING. Now you need not execute the first move displayed (E2E4) but can have a look at the alternatives by repeatedly pressing the ENTER key. Choose any of these opening moves that catches your fancy and execute it on the board while it is indicated in the display window.

The display will change to one of the possible answering moves. Again you can examine the alternatives by repeatedly pressing ENTER and execute the move you like best. In this manner, you can play through any of the branches of the opening lines that are stored in MEPHISTO's book.

If after pressing ENTER the display does not change, this means that there is only one continua-

tion available. When you have reached the end of an opening line, you will get the message, "No Book Move available".

You can, of course, leave Training Mode at any time by pressing CLEAR and start playing against the computer from the position on the board and with the colour that has the move.

5.4 Replaying opening lines

When you have gone through an opening line in Training Mode, you can make the computer replay this variation for you.

For this purpose, after examining an opening line don't press CLEAR to leave Training Mode but instead press the TRAINING key once more. The following display will appear:

```
Book Training
ENTER = Yes
```

Press ENTER, and the display will change to "Book Training Start of Game". Set the pieces up on the board in the initial position.

Press ENTER once more, and the first move of the opening line that you have just examined will be indicated both in the display window and on the chessboard (by means of the border LEDs). Execute this move on the board and press ENTER again. Now the answering move for Black will be shown. If you execute this move on the board and press ENTER again, then the next move of the opening line will be displayed, and so on. You can continue in this fashion until the last move of the line has been played on the board. Then the following message will appear:

```
Book Training
End of Game
```

Pressing ENTER once more will now switch back to the start of the game. You can set up the pieces in the initial position and replay the entire variation as before. Alternatively, you can press CLEAR to leave Training Mode.

5.5 Practising opening lines

When you have examined and replayed a specific opening line often enough and want to find out

whether you already know it by heart, proceed as follows:

Once the initial position has been reached, don't press ENTER to make the computer show you the moves but rather execute the moves on the board yourself. Correct moves will be registered normally by the computer. If, however, you try to make a move that deviates from the line you are replaying, the computer will reject it by sounding an error warning, waiting for you to try some other move. If after several tries you still can't think of the correct move, simply press ENTER to have it shown to you by the computer.

When you have reached the end of the variation, you will again get the message, "Book Training End of Game". You can now press ENTER once more to go back to the initial position (display reads, "Book Training Start of Game", set up the pieces) and attempt to replay the line from memory again.

Alternatively, you can leave Training Mode at any time by pressing CLEAR and start playing against the computer from the position on the board and with the colour that has the move.

6. Information Mode

By pressing the key labelled INFO (the LED above the key will light up), you can activate **Information Mode**, which allows you to access information about the computer's thinking process.

In contrast to all other special modes, which can be accessed only when it is your turn to move, Information Mode can be activated even while the computer is calculating.

After you have activated Information Mode, pressing the INFO key repeatedly will bring different items of information to the display window. The following items are available:

6.1 Info 1

If the computer has already left its opening book and calculated moves (or is currently calculating), then after pressing the INFO key for the first time you will see a move counter and the line of play currently considered best by the computer. Up to four half moves of the main line can be displayed, e.g.:

```
■ nr  D8-D6  A4-A5
  14  B6-D5  E5-C6
```

If you access the main line information while it is your turn to move, then you can use the second move displayed as a hint for your next move (the first move displayed is then the last move played by the computer).

You can leave Information Mode at any time by pressing CLEAR. This will put you back in the normal playing mode with its chess clock display.

6.2 Info 2

If the computer has already calculated moves or is currently calculating, then after pressing the INFO key twice the following kind of display will appear:

```
        1      2     3       5
        |      |     |       |
    -0.09  05.02  -   44
     0.03  F8D8    A8C8
        |              |
        4              6
```

1) The position evaluation in pawn units. A minus sign preceding this figure implies that the computer considers itself at a disadvantage.

On the lower line, directly below the position evaluation, there is a figure which reflects the difference between the current evaluation and the last one calculated by the computer. (This figure appear only if the computer has already calculated a position evaluation before.) What this figure means is discussed in more detail in section 6.3 below.

2) The current search depth in half moves (or "plies").

3) The number on the move list of the move currently being examined

4) The coordinates of the move currently being examined

5) The number of legal moves in the position being examined

6) The best move found so far

You can leave Information Mode at any time by pressing CLEAR. This will put you back in the normal playing mode with its chess clock display.

6.3 Chess tutor

MEPHISTO's unique chess tutor function evaluates your moves.

If the computer already calculated a position evaluation on the preceding move, then after activating Info 2 you will see, directly below the current evaluation, a figure which shows by what margin your last move deviates from the computer's expectations.

A value of 0.00 indicates that your move is in complete accordance with what the program expected. Evaluations between -0.30 and +0.30 indicate that the computer considers your move acceptable.

Evaluations below -0.30 suggest that the computer expected a move that it considers at least positionally superior to the one you played, and values below -0.90 usually indicate that you will soon lose material.

6.4 Info 3

If the computer has already calculated moves or is currently calculating, then after pressing the INFO key three times you will see the number of positions the computer has examined so far, e.g.:

```
     Positions :
  --  00.491.327  --
```

In this example, you can see that the program has examined almost half a million positions so far.

6.5 Info 4

As you may know, a computer continues its analysis even while its opponent is considering his or her moves. (The technical term for this feature is **'permanent brain'**). Obviously, the relevant information can only be shown while it is your turn to move.

If the computer has already calculated moves before, then pressing the INFO key four times will produce a display which shows the move it expects its opponent to play in the upper left corner of the display window, together with the following items of information about what the computer intends to do if the expected move is actually played:

```
  C2C4   06.12  -  32
 -0.08   G8F6    H7H6
```
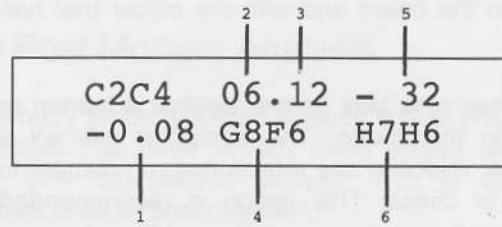
1) The position evaluation in pawn units

2) The current search depth in half moves or "plies"

3) The number on the move list of the answering move currently being examined

4) The coordinates of the move currently being examined

5) The number of legal moves in the position being examined

6) The best move found so far

7. Memory Mode

By pressing the key labelled MEMORY (the LED above the key will light up), you can activate **Memory Mode**, which allows you to store moves or sequences of moves in the internal memory of your computer and to retrieve them from storage.

Memory Mode can be activated only when it is your turn to move.

7.1 Entering moves, referee option

If you want to enter a single move or sequences of moves starting from the position currently on the board, press the MEMORY key once. The following display will appear:

```
     Player  -  Player
```

This reminds you of the fact that it will now be up to the player to enter moves **for both sides.** Execute the desired moves for White and Black on the chessboard. The computer will check these moves for legality but will not do any analysis of its own. The moves you enter will also be shown in the display window.

When you have reached the desired position, you can leave Memory Mode by pressing CLEAR and resume playing against the computer from the posi-

tion on the board and with the colour that has the move.

You may also play games against a human opponent in this mode. The computer will act as a referee, rejecting any moves that run counter to the rules of chess. This option is recommended for beginners.

The computer will react to illegal moves by sounding an error warning and displaying the corresponding message. Take the move back on the board (by first pressing down on the "to" square, then on the "from" square) and continue the game with a legal move.

7.2 Taking back moves or sequences of moves

MEPHISTO's internal memory allows you to take back some or all of the moves played in a game. For this purpose, press the MEMORY key twice while it is your turn to move.

```
-- Take Back --
E7-E5
```

The last move played will be indicated **in reverse order** both in the display and on the chessboard. Take the move back by first pressing down on the "to" square, then on the "from" square. As soon as you have pressed the piece down on its square of departure, the display will change to the last move played before the one you have just taken back.

If you take this move back in the same way as described above, the move played before that will be displayed. You can repeat this procedure as often as you like, up to and including the very first move of the game. After the first move has been taken back, the message "Start of Game" will appear in the display window.

When taking back a capture, the LEDs for the "to" square (which is now empty) will remain lit in order to remind you that the captured piece must be restored to its former location. In addition, the LED above the piece symbol for the type of the captured piece will go on. Put the appropriate piece on its former square, pressing down briefly. The LEDs indicating the square of capture will go out, as will the LED above the piece symbol.

You can leave Memory Mode at any time by pressing CLEAR and resume playing against the

computer from the position on the board and with the colour that has the move.

7.3 Automatic takeback option

Let's assume you have inadvertently made a bad move and notice this immediately after carrying it out on the board. You now wish to take back your move.

First you must wait until the computer has decided on an answering move (you can speed this up by pressing the ENTER key) and execute it on the board. Now there are two possibilities:

a) You activate Memory Mode as described in section 7.2 (by pressing the MEMORY key twice) and take back the last two half moves of the game.

b) You take back the last two half moves **directly on the chessboard** (i.e. without activating Memory Mode) by executing them **in reverse order** (i.e. by first pressing down on the "to" square and then on the "from" square). MEPHISTO will recognize that you are taking back moves and pass this information on to its chess program.

In this manner you can take back move sequences of any length directly on the board (i.e. without activating Memory Mode). Obviously, the longer the sequence, the more likely you will be to have forgotten the precise order of moves, so for taking back longer sequences it is advisable to use Memory Mode. In the case of just a few moves, however, the simplest way is to take them back directly on the board.

By the way: the automatic takeback option also works in Training Mode and can help you with the examination of opening lines. Alternative moves can simply be executed on the board and then taken back again.

7.4 Forward play

Your MEPHISTO's internal memory also allows you to replay some or all of the moves that you have taken back. For this purpose, after taking back a number of moves, don't press CLEAR to leave Memory Mode but rather press the MEMORY key once more.

```
- Move Forward -
G7-G6
```

The last move taken back will be shown both in the display and on the board. Execute this move on the board.

As soon as you have pressed the piece down on its destination square, the display will change to the last move taken back before the one you have just replayed. If you execute this move in the same fashion as above, the move taken back before that will be displayed.

You can repeat this procedure as often as you like, up to and including the last move played in the game. Then, instead of the coordinates of the next move you will see the message, "End of Game" in the display window.

You can, of course, leave Memory Mode at any time by pressing CLEAR and resume playing against the computer from the position on the board and with the colour that has the move.

7.5 Replaying a game

MEPHISTO's internal memory allows you to return to the beginning of a game after any number of moves have been played. For this purpose, press the MEMORY key four times while it is your turn to play. The following message will appear:

```
Replay Game ?
ENTER = Yes
```

Press ENTER to confirm that you really want to go back to the beginning of the game. The first line of the display will now read, "Move forward", and the first move played in the game will be shown both on the lower line of the display and on the board. Set the pieces up in the initial position and execute the first move on the board.

As soon as you have pressed the piece down on its destination square, the display will switch to the second move played in the game. If you execute this move on the board, then the next move played in the game will be displayed.

You can replay the entire game in this fashion. As soon as the last move played has been executed, the display will show the message, "End of Game".

You can leave Memory Mode at any time by pressing CLEAR and resume playing against the computer from the position on the board and with the colour that has the move.

7.6 Post Mortem Analysis

In Memory Mode, you can analyze critical positions in games that have already been played (e.g. in your own tournament games). This is usually referred to as a "post mortem".

Activate Memory Mode by pressing the MEMORY key once (the display reads, "Player-Player") and enter all the moves of the game you wish to analyze. Then press MEMORY three more times. The computer will display the message "Replay game?", waiting for you to press the ENTER key to confirm that you really want to replay the game. MEPHISTO will then go back to the start of the game and display the moves one by one for replaying as described in section 7.5.

Play the moves forward until you reach a **critical position**. Now (**before** carrying out the next move) press the key labelled TRAINING. The following display will appear:

```
- Move Forward -
Ply Depth    03
```

If you are satisfied with the search depth indicated, all you have to do is press CLEAR. If, however, you wish to change the setting, press ENTER and change the search depth by means of the TRAINING and INFO keys as described in section 9.5. In that case, you must finish your input by pressing the CLEAR key twice.

Now continue replaying the game until you reach another critical position, which can be marked for analysis in the same way. Altogether, you can mark ten positions per game in this fashion, mixing moves for White and for Black as desired.

As soon as you have marked the last critical position for analysis, press MEMORY repeatedly until the following message appears:

```
Analyse Moves
ENTER = Yes
```

Press ENTER to confirm that you want the computer to start analyzing the critical positions you have marked. Depending on the numbers of positions marked and the search depth you have set, it will take some time for the computer to finish its calculations. Then the following display will appear:

```
Display Results
ENTER = Yes
```

Press ENTER to confirm that you want to see the results of the computer's analysis. MEPHISTO will go back to the start of the game, indicating the moves for replaying as usual. Execute the moves on the board. As soon as one of the critical positions has been reached, MEPHISTO will announce this by sounding a tone signal and display the results of its calculations in the following manner:

```
nr D7-D5    0.25
14 E6-E1    2.67
```

The move number on the left indicates on which move the critical position was reached. The upper line shows the move that was played in the game and MEPHISTO's evaluation of that move. Below, you can see the move that MEPHISTO considers best in the critical position together with its evaluation. If the two moves are identical, this means that MEPHISTO considers the actual game continuation to have been correct. Otherwise, it considers its own "best" move to be superior to the one played in the game.

Continue the replaying of the game until you have reached another critical position. MEPHISTO will again sound a tone signal and display its analysis. After you have reviewed the analysis of all the critical positions you have marked, press CLEAR to leave Memory Mode in the accustomed fashion, going back to the normal playing mode with its chess clock display.

If, however, there are more than ten critical positions in the game that you want to have analyzed, you must first erase the previous markings. For this purpose, press the MEMORY key repeatedly until the following display appears:

```
Clear Results
ENTER = Yes
```

Press ENTER to confirm that you want to erase the previous markings. The display will switch back to the "Player-Player" message. Press MEMORY repeatedly until the "Move Forward" message appears. Now you may again mark up to ten critical positions for analysis as described above.

Please note that you cannot expect a reliable analysis of critical positions unless you set a sufficient search depth (from about 7 ply upwards). For this reason we recommend that you let the computer do its analysis overnight and check the results the next morning.

7.7 Storing a game

If you want to interrupt a game for some reason and resume playing at a later date, press the MEMORY key once before switching the computer off. The board position will then be stored in memory, as will the moves played so far, the current settings such as the playing level etc. This means that after switching the computer back on you will be able to continue the game from where you left off.

If in the meantime some pieces have been dislodged and you cannot remember their correct positions, refer to section 8.1 for a way of re-establishing the position on the board.

If, however, you do not press MEMORY before switching the computer off, then the current state of the game will be lost and the computer will be returned to its default settings when you switch it back on.

8. Position Mode

By pressing the key labelled POSITION (the LED above the key will light up), you can activate **Position Mode**, which allows you to check or change the placement of the pieces or to set up a new position on the board.

Position Mode can only be activated when it is your turn to move.

8.1 Verifying a position

If you want to check the current placement of the pieces on the computer's board (e.g. after setting up a chess problem or if some pieces have been dislodged), activate Position Mode by pressing the POSITION key once (the LED above the key will go on). The current location of the white king will appear in the display window, e.g.:

```
Position Verify
☐♟ E1
```

The square on the lower left indicates the colour (white or black), the symbol next to it the type of piece being examined. Then there follow the coordinates of the square that the piece is currently located on. In addition, the LED above the key with the corresponding piece symbol (in this case: the king symbol) and the border LEDs for the square the piece stand on (in this case, E1) will light up.

Pressing the POSITION key repeatedly will make the locations of all the pieces appear in the display window. First the white pieces will be shown in the following order: king, queen, rooks, bishops, knights and pawns. Then the black pieces will be shown in the same order. After the location of the last black pawn has been indicated, the display will switch back to the white king, and so on.

When you have examined the locations of all the pieces, you can leave Position Mode by pressing CLEAR. Please note that the colour of the last piece displayed before leaving Position Mode determines which side has the move. Therefore, if you want it to be White's turn to move, you must see to it that the last piece displayed before leaving Position Mode is a white piece.

8.2 Changing a position

To change the position currently on the board, first activate Position Mode by pressing the POSITION key. The message "Position Verify" will appear as described in section 8.1.

In order to inform the computer of your desire to alter the position on the board, press the ENTER key. The display will change to this:

```
Position Setup
□♟ E1
```

In addition, the LED above the key with the symbol for the piece currently being displayed will start flashing, indicating that changes can now be made. There are two possibilities:

a) If you press down on an **empty** square, a piece of the type and colour currently being shown in the display will be **inserted** on that square. In addition, the coordinates for the location of the inserted piece will be displayed, so you can check whether you have placed it on the correct square.

b) If you press down on an **occupied** square, that square will be **cleared**. At the same time, the type

and colour of the piece that was on the square before will be shown in the display. Combined with item a) above, this enables you to comfortably **relocate** a piece to a different position: just press it down first on its old and then on its new location.

In order to be able to insert any piece you wish, you have to see to it that before you press it down on its location, the type and colour of the desired piece appear in the display window. For this purpose, press the function key which is located above the corresponding piece symbol. Pressing such a symbol key once will make the display switch to a piece of the type represented by the symbol and of the same colour as the last piece displayed. Pressing the same key again will switch the display to a piece of the same type but of the opposite colour.

For example, if there is currently a black piece in the display, pressing the key above the bishop symbol will make a black bishop appear in the display, whereas pressing the key a second time will switch the display to a white bishop.

To check whether the changed position is in accordance with your intentions, you can press the ENTER key at any time to return to the position verification routine (display reads, "Position Verify") and carry out a position check as described in section 8.1. If, however, you are confident you have made the correct changes, then you can leave Position Mode immediately by pressing CLEAR.

Please note that the colour of the last piece displayed before leaving Position Mode determines which side has the move. Therefore, if you want it to be White's turn to move, you must see to it that the last piece displayed before leaving Position Mode is a white piece.

If you attempt to leave Position Mode by pressing CLEAR while the position currently on the board is contrary to the Laws of Chess (e.g. because one of the kings is in check and could be captured on the next move, or because there are 9 pawns on the board etc.), MEPHISTO will sound an error warning and display the following message:

```
Position Setup
-- Illegal --
```

Press CLEAR again. The computer will switch back to the setup routine, thereby enabling you to correct the position on the board. As soon as you have

MEPHISTO milano

made the necessary alterations, you can leave Position Mode by pressing CLEAR and resume playing against the computer from the position on the board and with the colour that has the move.

8.3 Setting up a position

If you want to set up a totally new position (e.g. a mate problem or an adjourned position you wish to analyze), then first remove all the pieces from the computer's board.

Press POSITION (display reads, "Position Verify") and then the key labelled TRAINING. The computer will sound a tone signal to indicate that is has now **cleared its internal board** and is ready to accept your input. The display will switch to "Position Setup", with the symbols for a white king displayed on the lower line. In addition, the LED above the key with the king symbol will start flashing.

If you now press down on any of the squares of the chessboard, the computer will **insert** a piece of the type and colour currently being shown in the display (initially, a white king) on that square.

In order to be able to insert any piece you wish, you have to see to it that before you press it down on its location, the type and colour of the desired piece appear in the display window. For this purpose, press the function key which is located above the corresponding piece symbol. Pressing such a symbol key once will make the display switch to a piece of the type represented by the symbol and of the same colour as the last piece displayed. Pressing the same key again will switch the display to a piece of the same type but of the opposite colour.

For example, if there is currently a black piece in the display, pressing the key above the bishop symbol will make a black bishop appear in the display, whereas pressing the key a second time will switch the display to a white bishop.

To check whether the changed position is in accordance with your intentions, you can press the ENTER key at any time to return to the position verification routine (display reads, "Position Verify") and carry out a position check as described in section 8.1. If, however, you are confident you have set up the position correctly, then you can leave Position Mode immediately by pressing CLEAR.

Please note that the colour of the last piece displayed before leaving Position Mode determines

which side has the move. Therefore, if you want it to be White's turn to move, you must see to it that the last piece displayed before leaving Position Mode is a white piece.

If you attempt to leave Position Mode by pressing CLEAR while the position currently on the board is contrary to the Laws of Chess (e.g. because one of the kings is missing), then MEPHISTO will sound an error warning and display the message, "Position Setup Illegal".

Press CLEAR again. The computer will switch back to the setup routine (display reads, "Position Setup"), thereby enabling you to correct the position on the board. As soon as you have made the necessary alterations, you can leave Position Mode by pressing CLEAR and start playing against the computer from the position on the board and with the colour that has the move.

Alternatively, you can press the ENTER key to make the computer start analyzing the position. (If it is a mate problem, then you first have to set the mate level as described in section 9.6.)

9. Level Mode

By pressing the key labelled LEVEL (the LED above the key will light up), you can activate **Level Mode**, which allows you to set the playing style, level of skill and thinking time of your computer.

Level Mode can be activated only when it is your turn to move.

9.1 General remarks

When you first switch the computer on, it is automatically set to the Normal playing level with an average thinking time of ten seconds per move. Apart from this default setting, MEPHISTO offers you a choice of several other types of playing level, divided into 8 groups as follows:

o Normal level
o Tournament level
o Blitz level
o Fixed search depth level
o Problem solving level
o Elo tournament level
o Elo active chess level
o Analysis level

In any of these groups (with the exception of the analysis level), you can set the parameters as you

wish, so there is practically an unlimited number of playing levels at your disposal.

After you activate Level Mode by pressing the LEVEL key, the display will show the playing level the computer is currently set to. Pressing LEVEL repeatedly will step through the different groups of playing level in the order given above. The playing levels are arranged in cyclical fashion, i.e. after the last item in the list (analysis) has been reached, pressing LEVEL once again will take you back to the first item (normal). Therefore, in order to set a specific level you just have to press the LEVEL key repeatedly until the type of level you wish to activate appears in the display window.

When you leave Level Mode by pressing CLEAR, the computer will automatically be set to the level currently being displayed.

9.2 Normal Level

Setting this level will instruct the computer to use a specific **average time per move** for its calculations. Obviously, the program may take more or less time for single moves, depending on the complexity of the situation on the board, but on the average it will conform to the time you have set.

Press the LEVEL key repeatedly until the desired type of level appears in the display window. The default setting is an average thinking time of 10 seconds per move.

```
- Level Mode -
Normal Time 0:10
```

If this is the setting you want, all you have to do is press the CLEAR key to leave Level Mode. The computer will automatically be set to the last level displayed before pressing CLEAR.

If, however, you wish to change the setting, press the ENTER key. The first digit of the figure indicating the average thinking time will start flashing to indicate that changes can now be made.

Each digit in the display corresponds to one of the function keys. The first digit from the left is associated with the key labelled TRAINING, which is the first key in the upper row of the function keys. Pressing the TRAINING key will therefore change the first digit in the display.

The second digit in the display is associated with the key next to TRAINING, i.e. the INFO key. Pressing the INFO key will therefore change the second digit. Likewise, pressing the MEMORY key will change the third digit in the display.

By means of these three keys (TRAINING, INFO and MEMORY), you can set the average thinking time to any value ranging from 0 seconds to 9 minutes 59 seconds.

When you have set the desired average time, press CLEAR. The display will stop flashing, and you can check whether the time you have set is in accordance with your intentions. If so, press CLEAR once more to leave Level Mode. If, however, you find you have made a mistake, then press ENTER and correct the setting.

9.3 Tournament level

Setting this level will instruct the computer to play a specified **number of moves** within a specified **period of time**.

Press LEVEL repeatedly until the desired type of playing level appears in the display window. The default setting is the usual time control for tournaments, 40 moves in 2 hours.

```
- Level Mode -
Tour 40 in  2:00
```

If this is the setting you want, all you have to do is press the CLEAR key to leave Level Mode. The computer will automatically be set to the last level displayed before pressing CLEAR.

If, however, you wish to change the setting, press the ENTER key. The first digit of the figure denoting the number of moves will start flashing to indicate that changes can now be made.

Each digit in the display corresponds to one of the function keys. The first digit from the left is associated with the key labelled TRAINING, which is the first key in the upper row of the function keys. Pressing the TRAINING key will therefore change the first digit in the display.

The second digit in the display is associated with the key next to TRAINING, i.e. the INFO key. Pressing the INFO key will therefore change the second digit.

By means of these two keys (TRAINING and INFO), you can set the number of moves to any value ranging from 01 to 99. When you have set the desired number of moves, press CLEAR. The first digit in the figure denoting the time control limit will start flashing, indicating that changes can now be made.

Again, each digit in the display corresponds to one of the function keys. The first digit from the left is associated with the key labelled TRAINING, which is the first key in the upper row of the function keys. Pressing the TRAINING key will therefore change the first digit in the display.

The second digit in the display is associated with the key next to TRAINING, i.e. the INFO key. Pressing the INFO key will therefore change the second digit. Likewise, pressing the MEMORY key will change the third digit in the display.

By means of these three keys (TRAINING, INFO and MEMORY), you can set the time control limit to any value ranging from 0:01 to 9:59 hours.

When you have set the desired average time, press CLEAR. The display will stop flashing, and you can check whether the number of moves and time control limit you have set are in accordance with your intentions. If so, press CLEAR again to leave Level Mode. If, however, you find you have made a mistake, press ENTER and correct the setting.

Whenever one of the levels Tournament, Blitz, Elo Tournament or Elo Active Chess is set, the computer's chess clocks will work in countdown mode, i.e. they will count down from the maximum time allowed.

In addition, if the tournament level is set, the number of moves at which the next time control will take place will be displayed.

```
☐ 40  00:53   02:21
  17  01:19   03:34
```

In this example, time control will be at move 40, and 17 moves have already been played, i.e. the player still has to make 23 moves until time control. For these 23 moves, the player still has a total time of 1 hour and 19 minutes remaining.

If you exceed the time limit, which normally entails the loss of the game, the computer will display the

message, "Time Control You Lose", but allow you to continue the game if you wish.

9.4 Blitz chess level

Setting this level will instruct the computer to make **all the moves in a game** within a specified **period of time**. Different times can be set for the computer and the human player, enabling you to play handicap games.

Press LEVEL repeatedly until the desired type of playing level appears in the display window. The default setting is a time limit of 5 minutes for the entire game for both sides.

```
- Level Mode -
Blitz  0:05 0:05
```

If this is the setting you want, all you have to do is press the CLEAR key to leave Level Mode. The computer will automatically be set to the last level displayed before pressing CLEAR.

If, however, you wish to change the setting, press the ENTER key. The first digit of the figure denoting the time limit will start flashing, indicating that changes can now be made.

Each digit in the display corresponds to one of the function keys. The first digit from the left is associated with the key labelled TRAINING, which is the first key in the upper row of the function keys. Pressing the TRAINING key will therefore change the first digit in the display.

The second digit in the display is associated with the key next to TRAINING, i.e. the INFO key. Pressing the INFO key will therefore change the second digit. Likewise, pressing the MEMORY key will change the third digit in the display.

By means of these three keys (TRAINING, INFO and MEMORY), you can set the player's time limit to any value ranging from 0:01 to 9:59 hours.

When you have set the time limit for the human player, press CLEAR. The first digit of the figure denoting the computer's time limit will start flashing, indicating that changes can now be made.

Again, you can set the desired time limit for the computer by means of the keys labelled TRAINING, INFO and MEMORY, as described above.

When you have set the computer's time limit, press CLEAR. The display will stop flashing, and you can check whether the times you have set are in accordance with your intentions. If so, press CLEAR again to leave Level Mode. If, however, you find you have made a mistake, press ENTER and correct the setting.

9.5 Fixed search depth level

Setting this level will instruct the computer to examine all positions to a specific **search depth** expressed in half moves (or "plies").

Press LEVEL repeatedly until the desired type of playing level appears in the display window. The default setting is a search depth of 3 half moves.

```
- Level Mode -
Ply Depth    03
```

If this is the setting you want, all you have to do is press the CLEAR key to leave Level Mode. The computer will automatically be set to the last level displayed before pressing CLEAR.

If, however, you wish to change the setting, press the ENTER key. The first digit of the figure denoting the number of plies will start flashing, indicating that changes can now be made.

Each digit in the display corresponds to one of the function keys. The first digit from the left is associated with the key labelled TRAINING, which is the first key in the upper row of the function keys. Pressing the TRAINING key will therefore change the first digit in the display.

The second digit in the display is associated with the key next to TRAINING, i.e. the INFO key. Pressing the INFO key will therefore change the second digit.

By means of these two keys (TRAINING and INFO), you can set the search depth to any value ranging from 01 to 99 half moves. Please note that due to technical limitations the computer cannot search deeper than 22 ply, so settings above that value will actually be registered as 22 ply.

As soon as you have set the desired search depth, press CLEAR. The display will stop flashing, and you can check whether the search depth you have set is in accordance with your intentions. If so, press CLEAR again to leave Level Mode. If,

however, you find you have made a mistake, then press ENTER and correct the setting.

9.6 Problem level

Setting this level will instruct the computer to **solve mate problems** in a specified number of moves. (The position must first be set up in Position mode, see section 8.3). The program will disregard all positional considerations and look only for a forcing mating combination.

Press LEVEL repeatedly until the desired type of playing level appears in the display window. The default setting is Mate in 3 moves.

```
- Level Mode -
Mate in 3 Moves
```

If this is the setting you want, all you have to do is press the CLEAR key to leave Level Mode. The computer will automatically be set to the last level displayed before pressing CLEAR.

If, however, you wish to change the setting, press the ENTER key. The digit denoting the number of moves to mate will start flashing, indicating that changes can now be made.

The flashing digit will change every time you press the key labelled TRAINING. In this way you can set the number of moves to mate to any value ranging from 1 to 8 moves.

When you have set the desired number of moves, press CLEAR. The display will stop flashing, and you can check whether the number of moves you have set is in accordance with your intentions. If so, press CLEAR again to leave Level Mode. If, however, you find you have made a mistake, then press ENTER and correct the setting.

When you are back in normal playing mode, press ENTER to make the computer start looking for mate in the specified number of moves. If a mate is found, MEPHISTO will display the key move and allow you to enter an answering move for Black. It will then find and display the correct counter move for White, and so on. If the problem has no solution, the computer will display the message, "No Mate".

MEPHISTO also allows you to look for **alternate solutions** to a chess problem (also called "cooks"). After the first key move has been displayed, press the CLEAR key. MEPHISTO will then restart its

calculations and display the next key move if there is one. If there is no other key move, the message "No Mate" will tell you that the problem has no "cooks".

9.7 Elo tournament level

Setting this level will instruct the computer to play a **tournament game** (40 moves in 2 hours) against you, simulating a player of a specified **approximate playing strength** expressed in Elo rating points. In addition, to enforce strict tournament conditions, you will not be allowed access to the computer's Information Mode, so you cannot take a peek at the move it is considering, its position evaluation etc.

Press LEVEL repeatedly until the desired type of playing level appears in the display window. The default setting is the computer's maximum playing strength of about 2000 Elo rating points.

```
- Level Mode -
Elo Tour     2000
```

If this is the setting you want, all you have to do is press the CLEAR key to leave Level Mode. The computer will automatically be set to the last level displayed before pressing CLEAR.

If, however, you wish to change the setting, press the ENTER key. The first digit of the figure denoting the computer's approximate rating will start flashing to indicate that changes can now be made.

Each digit in the display corresponds to one of the function keys. The first digit from the left is associated with the key labelled TRAINING, which is the first key in the upper row of the function keys. Pressing the TRAINING key will therefore change the first digit in the display.

The second digit in the display is associated with the key next to TRAINING, i.e. the INFO key. Pressing the INFO key will therefore change the second digit. Likewise, pressing the MEMORY and POSITION keys will change the third and fourth digit, respectively.

By means of these four keys (TRAINING, INFO, MEMORY and POSITION), you can set the computer's playing strength to any value ranging from 0000 to 2999. But please note that settings above 2000 will actually be registered as 2000, while settings below 1200 will be registered as 1200.

When you have set the desired Elo rating, press CLEAR. The display will stop flashing, and you can check whether the rating you have set is in accordance with your intentions. If so, press CLEAR again to leave Level Mode. If, however, you find you have made a mistake, then press ENTER and correct the setting.

As on the regular tournament level, the chess clocks will work in countdown mode.

9.8 Elo active chess level

Setting this level will instruct the computer to play a game of **"active chess"** (30 minutes for the entire game) against you, simulating a player of a specified **approximate playing strength** expressed in Elo rating points. In addition, to enforce strict tournament conditions, you will not be allowed access to the computer's Information Mode, so you cannot take a peek at the move it is considering, its position evaluation etc.

Press LEVEL repeatedly until the desired type of playing level appears in the display window. The default setting is the computer's maximum playing strength of about 2000 Elo rating points.

```
- Level Mode -
Elo Active   2000
```

If this is the setting you want, all you have to do is press the CLEAR key to leave Level Mode. The computer will automatically be set to the last level displayed before pressing CLEAR.

If, however, you wish to change the setting, press the ENTER key. The first digit of the figure denoting the computer's rating will start flashing to indicate that changes can now be made.

You can now enter the desired playing strength by means of the four keys labelled TRAINING, INFO, MEMORY and POSITION, as described in section 9.7 above.

When you have set the desired Elo rating, press CLEAR. The display will stop flashing, and you can check whether the rating you have set is in accordance with your intentions. If so, press CLEAR again to leave Level Mode. If, however, you find you have made a mistake, then press ENTER and correct the setting.

As on the regular Blitz level, the chess clocks will work in countdown mode.

9.9 Analysis (correspondence chess) level

This level has been developed with the needs of the **correspondence chess player** in mind. Set to the analysis level, MEPHISTO will calculate until it runs out of free memory (which usually takes a few days) or until you stop its calculations by pressing ENTER.

In addition, you can instruct the computer to look only at certain moves or, putting it differently, to exclude certain moves from its analysis.

Let's assume that in one of your correspondence games you have reached a position where you feel certain that there are only three reasonable continuations. You now want to consult the computer to find out which of the three moves it considers best. For this purpose, proceed as follows:

Press the LEVEL key repeatedly until the desired playing level appears in the display window.

```
- Level Mode -
-- Analyse --
```

Press CLEAR to leave Level Mode. The computer will automatically be set to the analysis level.

Now press ENTER to make the computer start calculating.

If you want an exhaustive analysis of the position, just leave things as they are. If however, you wish to instruct the computer to look only at a few specific continuations, proceed as follows: While the computer is calculating, execute one of the moves you want to have examined on the board (pressing down on its "from" and "to" squares). Wait about two seconds and then put the piece back on its original square (without pressing down). As soon as the program has registered the input of a move, it will reset its chess clock to 00:00.

You can now input as many moves as you like in the same manner (execute move, return piece to its original square). MEPHISTO will then compute the best continuation from among the moves you have entered, disregarding all others. This has the great advantage that millions of chess positions will not have to be computed and evaluated, so a lot of

time will be saved. If, for example, the program has only three or four moves to look at instead of the usual 40 or so, then it can carry its calculations to a considerably deeper level and calculate more exactly than under normal conditions.

If after some hours or even days you want to inspect the results of the computer's analysis, activate Information Mode to see the main line, search depth and position evaluation for the move the computer considers best. After that you can stop the computer's analysis by pressing ENTER.

10. Function Mode

By pressing the key labelled FUNCTION (the LED above the key will light up), you can activate **Function Mode**, which allows you access to several special options that your computer offers.

Function Mode can only be activated when it is your turn to move.

Every time you press the FUNCTION key, another special option will be shown in the display, in the following order:

o Select language
o Tournament book
o Invert board
o Turn sound on/off
o Activate randomizer
o Simulate chess clock
o Activate easy level
o Calculate new Elo rating

When the desired function appears in the display window, you can change its setting by pressing ENTER, as described below. When you leave Function Mode by pressing CLEAR (or by pressing FUNCTION once more after the last item has been reached), the changes you have made will be registered by the computer.

10.1 Select language

This option allows you to determine whether the computer is to display its messages in German or English. It appears in the display window when you press FUNCTION for the first time. The default setting is German.

```
-- Sprache --
-- Deutsch --
```

Pressing the ENTER key will toggle the setting, i.e. first change it to "Language English", then back to German etc.

If you press CLEAR to leave Function Mode, the computer will automatically register the last setting made.

10.2 Tournament book

This option allows you to instruct the computer to limit its extensive opening repertoire to a smaller number of openings which suit its playing style best. This may improve the computer's performance in tournaments.

Pressing the FUNCTION key twice will make this option appear in the display window. The default setting is "Off".

```
Tournament Book
   -- Off --
```

Pressing ENTER will toggle the setting, i.e. first change it to "On", then back to "Off" etc.

If you press CLEAR to leave Function Mode, the computer will automatically register the last setting you made.

10.3 Invert board

With this option you can instruct the computer to turn its internal board around by 180 degrees, allowing you to play with the black pieces from the lower part of the board. Please note that in this case the coordinates that are printed along the edges of the chess board lose their meanings.

Pressing the FUNCTION key 3 times will make this option appear in the display window. The default setting is "Off".

```
Change Board
   -- Off --
```

Pressing ENTER will toggle the setting, i.e. first change it to "On", then back to "Off" etc.

If you press CLEAR to leave Function Mode, the computer will automatically register the last setting you made.

10.4 Turn sound on/off

This option allows you to disable and re-enable the computer's tone signals, which accompany every move output, warn you of errors etc.

Pressing the FUNCTION key 4 times will make this option appear in the display window. The default setting is "On".

```
Sound Function
   -- On --
```

Pressing ENTER will toggle the setting, i.e. first change it to "Off", then back to "On" etc.

If you press CLEAR to leave Function Mode, the computer will automatically register the last setting you made.

10.5 Activate randomizer

Normally, MEPHISTO always plays the very best move it has found in the course of its calculations. By activating a randomizer, you can instruct the computer to relax this rule slightly, i.e. if it finds several moves of approximately equal strength, it will pick one of them at random. This makes the computer's play more varied.

Pressing the FUNCTION key 5 times will make this option appear in the display window. The default setting is "Off".

```
Randomizing
   -- Off --
```

Pressing ENTER will toggle the setting, i.e. first change it to "On", then back to "Off" etc.

If you press CLEAR to leave Function Mode, the computer will automatically register the last setting you made.

10.6 Simulate chess clock

This options allows you to instruct the computer to simulate the ticking of a chess clock while it is your turn to move. This helps to create a realistic "tournament environment".

Pressing the FUNCTION key 6 times will make this option appear in the display window. The default setting is "Off".

```
Chessclock
-- Off --
```

Pressing ENTER will toggle the setting, i.e. first change it to "On", then back to "Off" etc.

If you press CLEAR to leave Function Mode, the computer will automatically register the last setting you made.

10.7 Activate easy level

If you find your computer's play a little too strong for your own level of skill, you can reduce its playing strength a little by setting this option. It will then refrain from always playing the best move and may also make occasional mistakes.

Pressing the FUNCTION key 7 times will make this option appear in the display window. The default setting is "Off".

```
Easy Level
-- Off --
```

Pressing ENTER will toggle the setting, i.e. first change it to "On", then back to "Off" etc.

If you press CLEAR to leave Function Mode, the computer will automatically register the last setting you made.

10.8 Calculate new Elo rating

Your MEPHISTO has the official FIDE formula for calculating a rating for players up to 2400 Elo points stored in its memory. If you have a rating (official or estimated) and play against a rated opponent, you can use this option to find out whether and by how much your rating has gone up or down as a result of this game.

Pressing the FUNCTION key 8 times will make this option appear in the display window. Initially, a rating of 0000 will be displayed.

```
Elo Calculation
Your Elo :   0000
```

Press ENTER to indicate to the computer that you want to enter your own rating. The first digit of the rating figure will start flashing.

Each digit in the display corresponds to one of the function keys. The first digit from the left is associated with the key labelled TRAINING, which is the first key in the upper row of the function keys. Pressing the TRAINING key will therefore change the first digit in the display.

The second digit in the display is associated with the key next to TRAINING, i.e. the INFO key. Pressing the INFO key will therefore change the second digit. Likewise, pressing the MEMORY and POSITION keys will change the third and fourth digit, respectively.

By means of these four keys (TRAINING, INFO, MEMORY and POSITION), you can set your rating to any value ranging from 0000 to 2999. Please bear in mind that the formula is only valid for players up to 2400 rating points.

When you have finished entering your own rating, press CLEAR. The display will change to "Elo Player: ". Again, the initial value will be 0000. The first digit in this figure will start flashing.

Again, you can use the keys labelled TRAINING, INFO, MEMORY and POSITION to enter your opponent's rating. When you have finished, press CLEAR.

The display will change, prompting you to enter the result of the game. The initial setting is "+".

```
Elo Calculation
Result :   +
```

By pressing the TRAINING key, you can set the correct result (+ if you won, - if you lost, = for a draw).

When you have entered the result of the game, press CLEAR. In a flash, the computer will calculate your new Elo rating and display it in the window. You can then leave Function Mode by pressing CLEAR.

11. The input keys

11.1 The ENTER key

In the normal playing mode, the ENTER key has two different functions:

a) While the computer is calculating: ENTER will interrupt the computer's thinking process and force it to play the best move found so far.

b) While it is your turn: ENTER makes the computer start analyzing the next move in your stead (e.g. if you want to change sides during the game).

In the special modes, the ENTER key has a number of other functions, as described in the relevant sections.

11.2 The CLEAR key

Pressing the CLEAR key always leaves the current mode and returns to the normal playing mode with its chess clock display.

While the program is still in its opening book, pressing CLEAR will make it choose a different opening move (see section 3.1).

11.3 New Game

You can start a new game by pressing the ENTER and CLEAR keys together. All the settings (such as the language, sound on/off, the invert board option etc.) that were in effect during the last game will be retained. (This is known as a "soft" reset.) The current type of playing level will also be retained but will be reset to its default value (Normal 10 seconds, Blitz 5 minutes etc.) at the start of a new game.

A "hard" reset is obtained by switching the computer off and on again without pressing the MEMORY key before you switch it off (see section 7.7). In that case, all the current information will be lost and the computer will be reset to its default values.