

# Mephisto®



## INSTRUCTIONS



# FOREWORD

Dear chessplayer,

We congratulate you on the purchase of your new MEPHISTO VANCOUVER.

The VANCOUVER program is a further development of the successful Lyon program, which brought Mephisto victory at the worldchampionships in Vancouver, the eighth worldtitle in a row. Star-programmer Richard Lang once again succeeded to improve his brainchild considerably.

The VANCOUVER program, now with 256 KByte ROM, has been improved at the following points:

First, the opening library has been extended by 50 percent and now contains 150,000 half moves in 17,000 variations. Amongst the new opening lines there are many sharp variations, that suit the style of the program: open positions with many tactical possibilities. Mephisto VANCOUVER plays much more lively than its predecessors.

Second, the strategic abilities of the program have been improved. A few pawnstructures have been improved, as well as the centre control. In general Mephisto VANCOUVER plays strategically healthier.

A further improvement is the extended knowledge about pawn endings. The VANCOUVER program recognizes a lost pawn ending immediately and will avoid the pawn endgame when it has a material disadvantage. On the other side Mephisto VANCOUVER will take the first opportunity to exchange into a pawn endgame, when it has a material advantage.

A unique feature of Mephisto VANCOUVER is, that you have a choice between six different opening books. Each book has a random and a tournament setting. Especially for play against human players the openingbook HUMAN has been developed. There is also a special library for blitz games (BLITZ). Would you like to see your Mephisto play modern openings, or rather classical, then you choose MODERN or CLASSIC. For players who like to play gambits there is the special GAMBIT-library. The last book, NORMAL, is the standard opening library.

In addition the Mephisto VANCOUVER permits its user to influence its playing behaviour even further. Apart from varying the playing style and the so-called contempt factor and the possibility to disable the knowledge about pawn structures - already present in former versions - you can now change the value of each piece (settings between 50 and 150 percent are possible) and set the selective search depth between 0 and 12 half moves.

We are proud to be able to offer you the strongest chess program that is commercially available anywhere in the world. We are sure that your "diabolically" clever new chess partner will give you many hours of pleasure.

Your MEPHISTO team

Hegener + Glaser AG, Munich

## CHANGING THE LANGUAGE OF COMMUNICATION

On leaving the factory, your MEPHISTO is programmed to display its messages in the German language. If your dealer has not changed this setting already, you can change it yourself by means of the following procedure:

- CL** Press the **CL** key twice...
- CL** ...to get to the main menu
- DOWN** Press the **DOWN** arrow key three times...
- DOWN**
- DOWN** ...so the cursor is on **FUNKT**
- ENT** Press the **ENT** key (display: **\*SPRACHE DEUTSCH**)
- ENT** \* changes to > (**>SPRACHE DEUTSCH**)
- RIGHT** Press the **RIGHT** arrow key (**>LANGUAGE ENGLSH**)
- ENT** Finalize your input (**\*LANGUAGE ENGLSH**)
- CL** Back to the main menu

The display will now remain set to the English language until you change it again (via **OPTNS** or by activating **RESET**).

# 1. GENERAL INTRODUCTION

Besides its impressive playing strength, your MEPHISTO VANCOUVER offers you a large number of special features, in keeping with its status as world champion. Since a large number of options may well cause the operation of a computer to become a confusing jumble of key combinations to be memorized by the user, the interface of your MEPHISTO has been designed in a way that is more or less self-explanatory, once you have grasped the essential principles. In order to become acquainted with the basic rules of operating your computer, it is absolutely necessary that you should study this introductory chapter carefully, even if you are eager to "get going" at once. The time you invest in this preparatory study will pay off later when you discover that accessing the different options provided by your MEPHISTO is really child's play.

The operating system of your MEPHISTO VANCOUVER is identical with the one used by its predecessors (MEPHISTO ALMERIA, PORTOROSE and LYON). So if you have already worked with one of these earlier versions, you may skip this introductory chapter.

## 1.1 DESCRIPTION OF MEPHISTO VANCOUVER AND BAVARIA

The VANCOUVER program is available in two different forms: either as a set of modules to upgrade your modular MEPHISTO board or as a complete unit (including both the board and the modules). In either case, playing strength and operating principles will be exactly the same.

There are two versions of the VANCOUVER program that are essentially identical but differ in processor speed and therefore also in playing strength: MEPHISTO VANCOUVER 16 bit and MEPHISTO VANCOUVER 32 bit.

There are four different types of MEPHISTO chess computers of the modular variety: MEPHISTO Modular, Exclusive, München and Bavaria. Both the 16 and the 32 bit version of the VANCOUVER program can be used with any of these four board types, regardless of the program that you had installed in your unit before. There is one restriction, though: the 32 bit VANCOUVER set of modules cannot be used with a MEPHISTO Modular board.

The way the VANCOUVER program works is identical for the MEPHISTO Modular, Exclusive and München boards. They are all so-called **sensory boards** with one **light-emitting diode (LED)** on each square. These LEDs light up to indicate moves. Invisible but just as important are the **sensors** that are hidden underneath the board. The chess pieces are fitted with special magnets. The sensors detect the presence of such magnets, so your MEPHISTO "knows" where the pieces are located and which piece you are moving or have just moved.

The MEPHISTO Bavaria also has sensors and LEDs on each square. However, instead of using magnetic sensors, the presence of a specific pieces is detected by **magnetic induction**. The chess pieces contain induction-coils that are different for each particular piece type. The sensors in the Bavaria board detect not only the presence of a piece on a specific square but also which type of piece is located there. For example, on a Modular, Exclusive or München board you may well put a king on the queen's square and vice versa in the starting position, and play will proceed normally but with king and queen exchanged. The Bavaria board, however, will detect the mix-up and refuse to start a game unless the pieces are returned to their correct locations. The VANCOUVER program recognizes automatically whether it is installed in a Bavaria

or a regular sensory board. Due to the special characteristics of sensory boards, you cannot use any other set of chessmen than the one that came with your MEPHISTO unit.

The sensory board is part of the computer's casing, which also houses **three modules** (or cartridges). You can see these three cartridges when you pull out the drawer of your MEPHISTO. (In a Modular board, there is no drawer, so the modules are always in full view.) First there is the **processor module**, which contains the central processing unit and is fitted with six keys that enable you to communicate your wishes and commands to your MEPHISTO. Then there is the **graphic display module**. Its 32-character dot matrix display enables you to monitor the computer's calculations (which move it is considering, how many moves it has already investigated, how much time it has used up and a lot more) or to hold an operating dialogue with it.

If you have bought a VANCOUVER set of modules for upgrading your computer, then the third module will be the **adaptor module**. It contains a socket for connecting your computer to the power supply. If, however, you have purchased your MEPHISTO VANCOUVER as a complete unit, then this cartridge is not required and a dummy is provided in its stead.

## 1.2 ADVANTAGES OF THE MODULAR CONCEPT

Most people, at least in Europe, are right-handed, which is why most appliances, including chess computers, are built accordingly. Not so with the computers of the MEPHISTO modular family, which are known for their flexibility.

Would you prefer to have the keyboard on the left and the display on the right? Just go ahead and arrange them to your own taste! By swapping cartridges, you can try out different combinations of elements until you find the arrangement both visually pleasing and easy to handle. There is just one restriction: all the modules have to be installed in the unit. And **please remember to exchange cartridges only when the unit is disconnected from the power supply.**

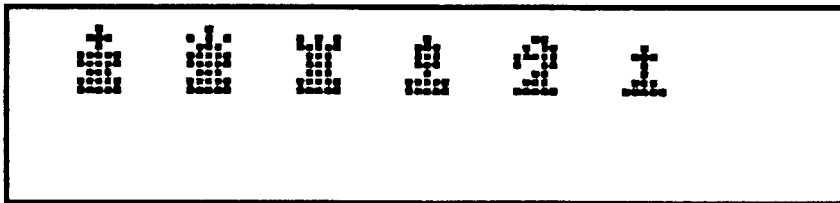
To either rearrange the cartridges you already have or to exchange an old set for your new VANCOUVER set of modules, pull the drawer out of the casing as far as it will go. (This does not apply to the Modular board, which has no drawer.) There is a little plastic catch on the right-hand side of the drawer. Pushing it outwards a little way will enable you to tip the whole drawer frame upwards. Now you can pull the cartridges out of their compartments and either re-insert them in a different combination or else insert your new VANCOUVER modules instead. Please note that the cartridges must be pushed in all the way; you can feel them snap into place. Only then will you be able to return the drawer frame to its original position. Although you are free to arrange the cartridges in any way you wish, we suggest that the adaptor module (if you have one) should always be installed on the left.

Please note that you should **never mix modules from different sets**. If you install a cartridge with the VANCOUVER program, make sure that no module from any other set is installed in your unit.

Obviously, the advantages of the modular concept extend far beyond the mere swapping of cartridges. The main purpose of the concept is **extension capability and adaptability to future developments**. Whenever technological innovations - such as stronger programs, even faster microprocessors or even more comfortable displays - become available, you will be able to incorporate them into your unit all by yourself without any trouble. Thus your MEPHISTO is guaranteed to remain for a long time one of the strongest and technologically most advanced chess computers of the world.

## 1.3 THE 32-CHARACTER DISPLAY

Your MEPHISTO VANCOUVER communicates with you by means of its **32-character dot matrix display**. The term is explained by the fact that each of the 32 characters (arranged in 2 rows of 16 each) is made up of a matrix (or grid) of 5x8 single dots. This allows the computer to display letters, numbers and symbols that you will soon come to know and understand by constant practice. The different chess pieces, for instance, are represented by easily recognizable graphic symbols. These are (in the order of king, queen, rook, bishop, knight, pawn):



## 1.4 POWER SUPPLY

Your MEPHISTO VANCOUVER must be connected to the mains power supply by means of the matching adaptor. It is not possible to use batteries.

**NOTE:** To avoid damaging the valuable electronic components of your MEPHISTO, please use **only the matching HGN 5004A mains adaptor**. Using any other adaptor will void your warranty, so any repairs that might become necessary will have to be paid for by you.

Connect the adaptor to the mains power supply. If you have purchased your MEPHISTO VANCOUVER as a complete unit, push the little round plug at the end of the adaptor cable into the socket at the side of your unit (on the right with MEPHISTO Modular, on the left with MEPHISTO Exclusive, München or Bavaria).

If, however, you have upgraded your computer with a VANCOUVER set of modules, you must use the socket on the adaptor module. In this case, you must **never** connect the adaptor cable to the socket at the side of your unit! Any damage that might occur as a consequence of an incorrect adaptor cable connection does not fall under the MEPHISTO warranty.

If you have a complete unit, you can now turn on the power by sliding the on/off switch at the side of your unit (next to the adaptor socket) forward. If, however, power is supplied via the adaptor module, the on/off switch is not used. In that case, you switch your computer on and off by connecting or disconnecting the plug at the end of the adaptor cable to (or from) the socket on the adaptor module. Don't worry: this won't do any damage to the computer!

## 1.5 OPERATING PRINCIPLES

In this very important chapter we are going to make a detailed study of the operating system of your MEPHISTO VANCOUVER. Please read the following paragraphs carefully; once you have grasped these basic principles, the rest of this instruction manual will be quite easy to follow. We will consider the most important items one by one:

1.5.1 What is a “menu-driven dialogue system”?

1.5.2 What is a “cursor”?

1.5.3 What effect do the ENT and CL keys have?

1.5.4 What is a “sub-menu”?

1.5.5 What does “activating an option” mean?

## 1.5.1 What is a “menu-driven dialogue system”?

This term implies that you can communicate your wishes to your MEPHISTO in the form of a **dialogue**. This is done by calling up a **menu** containing a number of commands. As an example, consider the **starting menu** which you see every time you turn on your MEPHISTO:

```
CONTI NEWG RESET
Mephisto Vancouver
```

You may now select the desired command - as you would choose a dish from a restaurant menu - by means of the 4 so-called **cursor or arrow keys** (LEFT, RIGHT, UP, DOWN), marking the desired option with the **cursor** and then pressing the **ENT** (for ENTER) key to finalize your input. (This method will soon be explained in more detail.)

## 1.5.2 What is a “cursor”?

The so-called **cursor** is simply a **flashing rectangle** which is always on one of the 32 positions in the display window. This cursor can be moved by means of the 4 **cursor keys** subject to the following rules:

```
REMEMBER: The right and left cursor keys move the cursor forward or backward by one position (or one word). The up and down cursor keys move the cursor forward or backward by one entire line (or block of lines).
```

As an example, let's activate the **NEWG** option from the starting menu, i.e. start a new game. At the moment, the cursor is still in the upper left-hand corner, on the letter “C” of **CONTI**. Now we press the **RIGHT** cursor key once, making the cursor jump to the first letter of the next word, in this case the “N” of **NEWG**. By doing this, we have now marked the **NEWG** command.

flashing cursor

```
CONTI NEWG RESET
Mephisto Vancouver
```

## 1.5.3 What effect do the ENT and CL keys have?

The **ENT** (for ENTER) key serves to **finalize** the selection of the option that you have marked. Press it once (while the cursor is on the “N” of **NEWG**), and the display will change to this:



```
-----  
01 *PLAY
```

By confirming your choice of the **NEWG** option by means of the **ENT** key, you have caused your **MEPHISTO** to report ready for play. You could now start playing a game already, but let's first continue with our review of the basic operating principles.

Another important thing to remember is that you can always - **from any point in the system** - return to the **main menu** with its assortment of commands by pressing the red **CL** (for **CLEAR**) key. Let's try this by pressing the **CL** key:

```
INFO MOVE NEXTB  
MEMO NEWG LEVEL
```

What you see in the display now is the **main menu**, which we are going to study in detail in section 3. This is the menu from which you can select the many options that your **MEPHISTO** has to offer.

REMEMBER: All input has to be **finalized** by pressing the green **ENT** key. Pressing the red **CL** key will always get you **back** to the main menu.

### 1.5.4 What is a "sub-menu"?

In some cases, after selecting a certain option there are still more choices to be made. In such cases, activating a command by pressing the **ENT** key will lead you to another menu, a so-called "**sub-menu**", from which you can again make your selection in the way described above.

As an example, let's consider the **LEVEL** option, which permits you - as the name implies - to choose among different playing levels. At the moment, the cursor is on the first letter of **INFO**. To move it to the **LEVEL** command, press the **DOWN** cursor key once and the **RIGHT** cursor key twice.

```
INFO MOVE NEXTB  
MEMO NEWG *LEVEL
```

We have now marked the **LEVEL** option and can confirm our selection by pressing **ENT**. In the display window you will now see the playing level the computer is set to at the moment. (How to change levels and which types of playing level are available will be discussed in section 3.)

### 1.5.5 What does "activating an option" mean?

The cursor keys have another important function: they permit you to **enter numbers** (playing levels etc.) or to **choose among various alternatives**. The procedure is as follows: Whenever the cursor is on an asterisk (\*), this means that the following item is a **variable** and may be changed by means of the cursor keys. Pressing the **ENT** key will **activate this option**; this is confirmed visually by changing the \* to a > symbol.

REMEMBER: Only when the > symbol appears can settings be changed.

Let's return to our current example, where pressing **ENT** has produced the following display:

```
LEVEL *NORML 01
C1 00;05 /MOVE
```

This is the default setting for the computer's playing level: an average response time of 5 seconds per move. The cursor is on the asterisk (\*). By pressing **ENT**, you can activate the option, changing the \* symbol to >:

> symbol: function is active

```
LEVEL >NORML 01
C1 00;05 /MOVE
```

Whenever the cursor is on this > symbol, you can use the cursor keys to step through the available alternatives, which are always arranged in a **cyclical** fashion (i.e. from the last element in the list you always get back to the starting point as if moving in a circle). As a rule, the **UP** and **DOWN** cursor keys will allow you to progress by larger increments (e.g. when setting a numerical variable) than the **LEFT** and **RIGHT** cursor keys.

For practice, let's now press the **RIGHT** key twice to change the display from **NORML 01** to **NORML 03** (15 seconds per move):

```
LEVEL >NORML 03
C1 00;15 /MOVE
```

When you have set the desired value by means of the cursor keys, you press **ENT** to **finalize your input**. On the other hand, if you press **CL** the changes you have made will be ignored and **the old value restored**.

```
REMEMBER: When the cursor is on the > symbol, pressing ENT or CL will change this back to * and de-activate the option. ENT finalizes your input, whereas CL restores the old value.
```

Finally, pressing **CL** again will get you out of the current option and back to the main menu.

## 2. GETTING STARTED

### 2.1 SETTING UP THE PIECES

You should always **set up the pieces on the board before turning on the power**. Usually, the white pieces are placed on the squares from A1 to H1 and from A2 to H2, the black pieces accordingly on the squares from A8 to H8 and from A7 to H7. This applies especially if you want to play White, because you will then be sitting on the “correct” side of the chessboard.

If you want to play Black and you don't mind playing from the “wrong” (i.e. the upper) side of the board, you can set up the pieces in the way described above. If, however, you wish to play with the black pieces from the bottom of the board, you have to set up the pieces the other way around, i.e. the black pieces from A1 to H1 and from A2 to H2, the white pieces from A8 to H8 and from A7 to H7. (In that case, you have to invert MEPHISTO's “internal” board after power-on; for this see special option **INVERT**, section 3)

Once you have set up the starting position on the board, you can turn your MEPHISTO on by sliding the ON/OFF switch to the ON position or by pushing the adaptor jackplug into the socket on the adaptor module. All the pieces should be located in the centre of their respective squares, otherwise the LED on that square will start flashing, and your MEPHISTO will refuse to accept any moves. If you have a Bavaria board, then the program will also check whether the correct types of pieces are on the corresponding squares. For example, if you put a knight on f1 and a bishop on g1 in the starting position, the Bavaria board will react by flashing the LEDs on both squares, whereas the other types of sensory board (Modular, Exclusive and München) will accept the position as correct. As soon as MEPHISTO has no further objections, the **starting menu** will appear in the display window.

### 2.2 THE STARTING MENU

Whenever you turn your MEPHISTO on, it will report for duty with the so-called **starting menu**.

CONTI NEWG RESET Mephisto Vancouver
----------------------------------------

Moving the cursor down will produce further information:

68000      512 Kbyte !World Champion!
------------------------------------------

Copyright      (c) R. Lang          1988-91
------------------------------------------------

This tells you that you have a MEPHISTO VANCOUVER 16 bit unit with a 68000 microprocessor and 512 Kbyte of RAM. In an analogous fashion, the VANCOUVER 68020 will display the information **68020 1024 Kbyte**.

Now what do the three commands in the first line mean? Since your MEPHISTO has an excellent memory, it doesn't forget anything, even if it is turned off or if its power

supply is suddenly interrupted. Therefore **the last game played is likely to be still present in its memory**. By selecting the CONTI option (or pressing the CL key) you can now continue that game. NEWG will start a new game with the same settings you used in the last game (with the exceptions listed below), whereas RESET has basically the same effect but erases the old settings and restores the default settings.

Whenever you change playing levels, the following options are reset to their default values and have to be re-activated if you wish to change them: LEARNER, RANDOM, CONTEMPT, OPERAT T, P. BRAIN, BOOK, BOOK S., STYLE, SELECTVE, PAWN STRUCT, PAWN VAL, PIECE VAL, and HASH. In this way, MEPHISTO avoids an accidental “weakening” of its program that might otherwise go unnoticed.

After activating NEWG, you will see the following display:

```
-----  
01 *PLAY
```

This is how MEPHISTO announces that it is **ready for play**. You may now make your first move. If you want to change anything else before starting the game (e.g. set the playing level), you can always get to the **main menu** by pressing the CL key (see section 3).

## 2.3 MAKING MOVES

Now we're all set to go! Let's assume for the moment that you want to play with the white pieces. Lift the piece that you want to move from its square, and the LED on that square will light up. Now place the piece on the square you want to play it to, and the LED of that square will light up briefly.

As soon as MEPHISTO has found its answering move, it will sound a double tone signal and the computer's move will appear in the display, e.g.:

```
01 E2-E4 E7-E5  
02 *PLAY
```

In the first line, you see the preceding move (the one you made), and beside it the **“from” and “to” squares of the computer's move**, i.e. it wants to move the pawn from E7 to E5. As a visual reminder of this, **the LEDs on those two squares will start flashing**. As soon as you have executed the computer's move on the board (in the same way as your own), the LEDs will go out and it will be your turn again.

Don't be confused if MEPHISTO doesn't seem to analyze at all during the first few moves of a game but produces its answering moves immediately. In this phase, the computer usually chooses its moves from a special **“opening library”** that is stored in its memory.

**NOTE:** When making a move, always lift the pieces from the board and put them down on their destination squares, but please **do not slide them across the board!** That would “confuse” the computer's sensors. If you intended to move the rook from A1 to D1 and started sliding it to the right, it would first make contact with the adjoining square B1. The sensor under that square would report the contact to the computer, which would not wait for you to do anything else with the rook but simply register the move “rook from A1 to B1”, which wasn't at all what you intended. Therefore make sure never to touch any square but the “from” and “to” squares of your move.

## 2.4 ENTERING MOVES WITHOUT USING THE SENSORY BOARD

MEPHISTO also allows you the option of **entering moves via the keyboard** instead of the sensory board. Admittedly, this option is of little practical importance unless you happen to have mislaid your magnetic pieces and still want to play a game.

The computer is ready for play, the cursor is on the \* symbol. By way of a little exercise, let's assume that you want to move the knight from B1 to C3. First we have to activate the function by means of the ENT key:

```
-----  
01 >A2
```

In order to enter the **“from” square B1**, press the **RIGHT** cursor key once (one file to the right = B), then the **DOWN** cursor key once (one rank down = 1) and finalize your input by pressing **ENT**.

```
-----  
01 B1>B1
```

In order to enter the **“to” square C3**, press the **RIGHT** cursor key once (one file to the right = C) and the **UP** key twice (two ranks up = 3).

```
-----  
01 B1>C3
```

By pressing **ENT**, we finalize our move input, and MEPHISTO will start calculating its answering move.

## 2.5 SPECIAL MOVES

**Checks:** When MEPHISTO puts your king in check, it will dutifully announce this by displaying the internationally recognized check symbol “+”, e.g. :

```
18 D1-H5+   E8-F8  
19 H5-F7+   MATE
```

**Captures:** They are executed just like any other move. But **please remove the captured piece from the board before you move the capturing piece** to the appropriate square. This applies to your own captures as well as to the computer's.

**Capturing en passant:** This is a little different from other captures in that you have to **move the capturing pawn** to its new square first, and only then remove the captured pawn.

**Castling:** When castling, please remember to **move the king before moving the rook** (the way it is prescribed by the official Laws of Chess). If you move the rook first, MEPHISTO won't know that you want to castle but will assume that you want to make a rook move. Likewise, if MEPHISTO wants to castle it will first indicate the king move and then, as soon as you have executed the latter, the rook move (by flashing the respective LEDs).

**Pawn promotion:** If you move a pawn to your opponent's back rank, the following display will appear:

PROMOTE	QUEEN
ROOK	BISH NITE

The cursor is on the word **QUEEN**, i.e. MEPHISTO suggests promoting the pawn to a queen, which in 99% of all cases is probably just what you intend to do. Simply confirm the promotion to a queen by pressing **ENT**, and the computer will go on with the game. If, however, you prefer a different piece, move the cursor by means of the **RIGHT** key and press **ENT** when you have made your selection.

If MEPHISTO promotes a pawn, it will show this in the display as in the following example:

50	G6-G7	A6-A7
51	G7-G	*PLAY

## 2.6 STAND-BY AND ANALYSIS PHASE

It is easy to determine whether the computer is "thinking" or waiting for you to move. The basic rule is that a **flashing** display means that the computer is thinking (i.e. in its **analysis phase**), whereas a **steady** display means that it is your turn to move (**stand-by or waiting phase**).

## 2.7 WHITE OR BLACK TO PLAY

The form of the cursor will help you to determine whether it is White's or Black's turn to play:

REMEMBER: When it is White to move, the position of the cursor is indicated by a flashing rectangle. When it is Black's turn to move, you will see an additional horizontal bar underneath the cursor.
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

## 2.8 ERRORS AND HOW TO CORRECT THEM

**Illegal moves:** If you try to make an illegal move, MEPHISTO will react with a beep; the display will remain unchanged. Simply take back the illegal move and continue with a legal move.

**Upset pieces:** If a piece is accidentally knocked over during play, the computer will light up the LED on its original square. Simply replace the piece, and all will be well again.

**Pieces displaced or moved to the wrong square:** This kind of error is often detected only when the computer rejects one of your moves as illegal, although it seems perfectly normal to you. Take back that move, change to **VERIFY** mode and carry out a **position check** (see section 3.11). If you wish, you may now correct the position of your piece(s). If, however, you want to continue the game with "your" position (which is "wrong" to the computer), you have to change the position on the computer's internal board in **SETUP** mode (as described in section 3.10).

**Taking back moves:** If you have lifted a piece from its square but not placed it on its destination square yet, simply put it back on its original square. If, however, it is already on the new square and the computer has started analyzing, you have to

activate the **BACK** command from the main menu, and then take back your move as it is indicated by the LEDs on the board.

Whenever it is your turn to move, you can take back as many moves as you wish by simply **executing them on the board in reverse**. MEPHISTO will then indicate the preceding move by flashing the respective squares. Take back that move, and the computer will indicate the next move to be retracted etc. As soon as you have reached the desired position, press the CL key and enter the move you wish to play from that position. When taking back captures, you must not forget to restore captured pieces to their respective squares.

## 2.9 THE END OF A GAME

If MEPHISTO is **checkmated** by you or checkmates you, this will be indicated in the display. An example:

18	D1-H5+	E8-F8
19	H5-F7+	MATE

MEPHISTO may also announce checkmate to be delivered in a certain number of moves (e.g. “mate in 3”).

If **RESIGN** appears in the display, this means that MEPHISTO **has resigned**, i.e. its **position evaluation** has dropped below -9.99. This happens only if the relevant option (see section 3.7.6) has not been set to OFF. Resigning does not mean that the computer will stop playing, so if you aren't quite sure about the position or want to practice your ability to convert an advantage, you may go on playing.

### What does “position evaluation” mean?

As we will see in the next section, in line 4 of the **INFO** Mode display there appears a very interesting figure with two decimal places (e.g. 0.12). It indicates the amount by which MEPHISTO considers its present position to be better or worse than its opponent's. This evaluation is calculated in **pawn units**. A **minus sign** means that MEPHISTO considers its position to be inferior; a **positive value** (no sign) shows that it is confident of having an advantage.

A widely accepted table of values for the chess pieces looks like this:

pawn	= 1 unit (the basic unit)
knight	= 3 units
bishop	= 3 units
rook	= 5 units
queen	= 9 units

Like any strong chessplayer, MEPHISTO goes beyond evaluating only the material value of the pieces by also considering positional factors. Therefore, if the display shows an evaluation of 5.00, this means that the computer sees an advantage for itself that is approximately equal to one rook. This does not necessarily imply that it is actually a rook up in the game; the figure may also reflect an overwhelming positional advantage or perhaps a plus of three pawns combined with a clearly superior position.

If MEPHISTO shows an evaluation of more than 9.99 (plus), this means that it **expects you to resign** because it is of the opinion that it has a certain win. Of course, there is nothing to keep you from playing on in such a position, e.g. in case you want to test the computer's ability to deliver checkmate.

If there is a **draw**, e.g. by **threefold repetition** of a position, the **50-move rule** or **insufficient material** (e.g. king and bishop against king), MEPHISTO will indicate this in the display and reject all further moves. The same is true if MEPHISTO **stalemates** you or is stalemated by you.

## 2.10 STARTING A NEW GAME

Do you want to start a new game? That's no problem: all you have to do is simply **return all the pieces to their initial positions!** You will hear a long beep and see the familiar readiness message:

```
-----  
01 *PLAY
```

MEPHISTO is now ready to play a new game with the same settings as in the previous one. If in the last game you had inverted the (internal) board, i.e. played with the black pieces from the two bottom rows, MEPHISTO will of course expect you to set up the pieces in the same way unless you explicitly reset this option to OFF.

There is one possible exceptional case that you should be aware of: If in returning the pieces to their initial positions you accidentally carried out the last move of the previous game in reverse, the program may have entered **MEMO** (i.e. take back) Mode, which it will announce by displaying the word **MEMO**. By simply pressing **CL**, you will get the beep and the readiness message, as described above.

**REMEMBER:** To start a new game, simply return all the pieces to their initial positions. (If you see **MEMO** in the display, press **CL** once.)

There is another (more complicated) way of starting a new game, viz. by activating the **NEWG** option from the main menu (see section 3).



## 3. THE MAIN MENU

### 3.1 GENERAL INFORMATION

The **main menu** consists of altogether **five different lines** (two lines in analysis phase), from which you may **select** the desired item by means of the 4 cursor keys and then **activate** it by pressing **ENT**. The two **horizontal keys** permit you to go back or forward by **one position**, while the **vertical keys** always jump to the **beginning of the following (or preceding) line**.

There are two basically different versions of the **main menu**, depending on whether MEPHISTO is in its analysis or stand-by (waiting) phase. That's only to be expected, since while MEPHISTO is calculating, your choice of options is obviously more restricted.

From any point in the program you can always **get back to the main menu** by **pressing the CL key**.

**Main menu in analysis phase** (characterized by a **flashing display**):

```
MOVE INFO
BACK NEWG
```

**Main menu in stand-by phase** (characterized by a **steady display**).

Pressing the **DOWN** key repeatedly will make all the lines of the menu appear in the display window:

```
INFO MOVE NEXTB
MEMO NEWG LEVEL
```

```
SETUP VERFY BOOK
OPTNS2PLAY AUTO
```

```
GAMES DISPL
```

- 3.2 INFO** Play a game or view information
- 3.3 MOVE** Computer starts calculating or makes a move
- 3.4 NEXTB** Search for alternate (next best) move
- 3.5 MEMO** Take back moves or play forward
- 3.6 NEWG** Start a new game
- 3.7 LEVEL** Set playing level
- 3.8 SETUP** Set up a position
- 3.9 VERFY** Position verification
- 3.10 BOOK** User-programmable opening library
- 3.11 OPTNS** Activate special options
- 3.12 2PLAY** Enter moves for both sides (monitor mode)
- 3.13 AUTO** Automatic play (computer plays against itself)
- 3.14 GAMES** Up to 50 games may be stored in memory
- 3.15 DISPL** Set info display

## 3.2 INFO

INFO Mode is the **standard mode for playing a game** while at the same time having access to information about individual moves and **monitoring the computer's thinking process**. Whenever it is your turn to play and you press the CL key to go to the main menu, the cursor will be on INFO. You may then either play your move at once or else press ENT to activate INFO Mode.

INFO Mode offers you a lot of information arranged in **3 blocks with a maximum of 13 lines altogether**. What is displayed depends on the setting of the DISPLAY special option (NORML, ROTAT or USER, section 3.7.15). The default setting is NORML, which usually displays the number of moves and the time left until the next time control (i.e. lines 12 and 13), but this may vary depending on the playing level.

REMEMBER: In INFO Mode, the two horizontal cursor keys permit you to move forward by one line, while the vertical cursor keys always jump to the beginning of the following (or preceding) block.

Here's one typical example of the different items of information that are available:

Block 1: **Line 1:** Move number, preceding move and the last move played (E7-E5). (If MEPHISTO is playing White, you will see the two preceding half-moves in line 1, while the last move played is in line 2; i.e. White's moves are always shown on the left.)

**Line 2:** Move number and info. Info may be: **PLAY** (=stand-by phase), **2PLAY** (=monitor mode), **COMPU** (=computer is analyzing), **MATE**, **STALE** (=stalemate), **50 MV** (=draw by 50-move rule), **3REP** (=draw by threefold repetition), **MATL** (=draw by insufficient material) etc.

01	E2-E4	E7-E5
02	*PLAY	

Block 2: **Line 3:** Search depth: 1 half-move full-width ("brute force") and 13 half-moves selective; the program is currently considering the move G1-F3, which is the 4th move on its move list (out of 28 possible moves).

**Line 4:** Position evaluation in pawn units (from MEPHISTO's point of view, positive or negative) and the first two half-moves of the anticipated main line of play. The first move (here B1-C3) is the one that MEPHISTO considers best at the moment.

01/08	G1F3=04/28
-0.24	B1C3 B8C6

**Lines 5+6:** Continuation of the anticipated main line.

G1F3	G8F6	D2D3
D7D6	C1G5	C8G4

**Line 7:** The last few moves of the anticipated main line (a maximum of 11 half-moves may be displayed).

**Line 8:** Previous position evaluation and move following the last move played (in analysis phase) or the anticipated move (in stand-by phase) respectively.

F1E2	----	----
-0.12	E2E4	G8F6

**Line 9:** Continuation of the variation in line 8.

Block 3:

**Line 10:** The computer's (C1) total time so far and time spent thinking on the current move.

**Line 11:** The human player's (P1) total time so far and time for the current move.

C1	13;14	01;12
P1	10;11	02;13

**Line 12:** Number of moves and time left until the next time control (if any) for the computer (C:).

**Line 13:** Number of moves and time left until the next time control (if any) for the human player (P:).

C:	37 M/00:46;48
P:	36 M/00:45;26

Like most other modes, **INFO Mode** is arranged in a **cyclical** fashion, i.e. when stepping through the lines by means of the cursor keys, line 13 will be followed by line 1, block 3 by block 1 etc.

NOTE: When times are displayed in 4-digit form, hours and minutes are separated by a colon (:), minutes and seconds by a semicolon (;).

### 3.3 MOVE

Activating this option will cause MEPHISTO either to make a move immediately (in analysis phase) or to start calculating a move (in stand-by phase).

a) **Interrupting the computer's thinking process:** Simply press the **CL** and **ENT** keys in sequence while the computer is thinking. This will activate the **MOVE** command from the main menu, and MEPHISTO will then immediately play the move that it considers best at the moment.

b) **Changing sides:** If you activate **MOVE** while it is your turn to play (**CL**, **RIGHT** and **ENT**), MEPHISTO will take your side and start thinking about the next move in your stead. If after that you proceed as usual, you will just have changed sides and the game will continue with the colours exchanged. If, however, you wish to take your former colour again, you have to activate **MOVE** again while it is your turn to play. By repeating this procedure several times, you can make MEPHISTO play against itself.

### 3.4 NEXTB

This option permits you to **reject a computer move** and cause it to calculate an **alternate move**. If for some reason you don't like the computer's proposed move, then **don't execute it on the board** but select the **NEXTB** option from the main menu and confirm this by pressing the **ENT** key. The computer will then start thinking again, but the move that you rejected is now **excluded** and MEPHISTO is obliged to find another (next best) move.

You may repeat this procedure as often as you like, thereby making MEPHISTO give you a complete “move list”.

## 3.5 MEMO

The internal memory of your MEPHISTO permits you to **replay sequences of moves or even an entire game**, provided no moves have yet been made in a new game and the board hasn't been changed or cleared.

The following options are available:

3.5.1 Playing backward

3.5.2 Playing forward

3.5.3 Jumping backward or forward

### 3.5.1 Playing backward

Activate the **MEMO** option from the main menu at any point in a game, and you will get something like the following display:

```
03  F1-C4  G8-F6
>04  MEMO
```

Now press the **LEFT** key, and the last two moves played before the current position was reached will be displayed in the lower line. In addition, the LEDs on two squares (in this case G8 and F6) will light up to show you how to take back the last move.

However, there is an even easier way of doing it, without any keystrokes at all!

**REMEMBER:** To take back a move, simply **carry it out in reverse on the sensory board**. MEPHISTO will then automatically enter **MEMO Mode** and offer to take back further moves.

Play the knight from F6 back to G8, and the squares C4 and F1 will light up to indicate the preceding move. Thus MEPHISTO offers you an **automatic take back option**: you can take back one move after the other without having to press any keys. In this way, you may take back all the moves of a game, of course only as far as the **original position** (i.e. the basic starting position or one that you have set up). If there are no more moves to take back, the display will look like this:

```
-----
>01 MEMO
```

If the last move taken back was a capture, MEPHISTO will remind you of this by displaying the graphic symbol for the respective piece in the lower right corner of the display. When taking back **castling**, the king move will be displayed in reverse first, then the rook move (the latter won't be indicated in the display but only on the board by means of flashing LEDs). When taking back a **pawn promotion**, the pawn move will be displayed in reverse.

If after making a move you change your mind and wish you had played differently, don't worry: MEPHISTO allows you to **take back your last move even when it has already started calculating its reply!** Press **CL** (the analysis menu appears), then **DOWN** (the cursor jumps to **BACK**) and **ENT**. MEPHISTO will break off its calculations at once and indicate your last move both in the lower right part of the display window

and on the board (flashing LEDs). Take back your move, and you will be in INFO Mode again and at liberty to play a different (hopefully better) move.

### 3.5.2 Playing forward

After having taken back a few moves, press the RIGHT key. On the sensory board you will see two lit square LEDs indicating the forward move to be played. Once you have executed this move, MEPHISTO will indicate the next forward move by flashing the respective LEDs, thus offering **automatic forward play** without the need for any additional keystrokes. In this way, you can play all the moves forward one after the other, of course only as far as the **final position**.

When playing forward, you may at any time leave MEMO Mode by pressing CL and continue the game with a different move, if you wish.

### 3.5.3 Jumping backward or forward

It is particularly easy to **jump directly to the beginning of the game** (or to the original position) by pressing the UP cursor key. In a similar fashion, you may **jump to the end of the game** (or the current position) with one press of the DOWN cursor key.

(By the way: you cannot enter moves or sequences of moves in MEMO Mode. For this purpose, please use 2PLAY Mode.)

## 3.6 NEWG

This option permits you to **start a new game** at any time, even while MEPHISTO is thinking. (As you already know, there is an even simpler way of doing this, viz. by returning all the pieces to their initial positions.) By selecting the NEWG option from the main menu and activating it with ENT, you can get back to **the starting position** from any mode. In this way, you can always start a new game, **retaining the present playing level and all other parameter settings**. The clocks are reset to zero.

(The last game played is still present in the computer's memory; it isn't erased until the first move of a new game is made. If you have activated NEWG by mistake, you can still enter MEMO Mode to go back to where you left the game and continue from there.)

## 3.7 LEVEL

Your MEPHISTO has an **unlimited number of freely programmable playing levels**, divided into several groups, so that players of all categories, from beginner to expert, will be able to find a partner of suitable playing strength. If you play regularly against your MEPHISTO, you will soon be able to gauge your own progress by setting it to ever higher levels, while still obtaining good or even superior results.

Activate the LEVEL option from the main menu in the accustomed fashion. In the display you will see the playing level the computer is currently set to. The default setting (originally and after RESET) is **NORML 01**.

STUFE *NORML 01 C1 00;05 /MOVE
-----------------------------------

Your MEPHISTO has several different **types** of playing levels, each of which offers a number of different settings. First move the cursor to the \* symbol, change it to > by pressing ENT and then use the **vertical cursor keys** to select the desired **type of playing level**. The **horizontal cursor keys** then enable you to **change the parameters** of the selected type of level within the available limits. Finally, you press ENT to confirm your input, as usual.

The meaning of the different types of playing level will be discussed below. As an example, let's look at the playing level **TOURN 00**:

STUFE	*TOURN 00
C1 40	IN 02:00

C1 40	IN 02:00
C2 20	IN 01:00

P1 40	IN 02:00
P2 20	IN 01:00

In our example, both the computer (C) and the human player (P) have to make 40 moves in 2 hours until the first time control and then 20 moves in 1 hour until the second time control.

Whenever you change playing levels, a number of options are reset to their default values and have to be re-activated if desired (see section 2.2).

### 3.7.0 LEVEL NORML 00 to LEVEL NORML 09

These **normal playing levels** set an average response time per move for the computer. The actual move times may vary considerably from this average, but these deviations will cancel each other out in the long run.

<b>NORML 00</b>	Average time per move: 2 seconds
<b>NORML 01</b>	Average time per move: 5 seconds
<b>NORML 02</b>	Average time per move: 10 seconds
<b>NORML 03</b>	Average time per move: 15 seconds
<b>NORML 04</b>	Average time per move: 30 seconds
<b>NORML 05</b>	Average time per move: 1 minute
<b>NORML 06</b>	Average time per move: 1 minute 30 seconds
<b>NORML 07</b>	Average time per move: 2 minutes
<b>NORML 08</b>	Average time per move: 3 minutes
<b>NORML 09</b>	Average time per move: 3 minutes 45 seconds

### 3.7.1 LEVEL TOURN 00 to LEVEL TOURN 09

On these **10 tournament levels**, time controls are set for both the player and the computer. Such time controls are frequently used in both national and international tournaments. If you exceed your time limit, MEPHISTO will claim a win on time. Of

course, there is nothing to prevent you from playing on; MEPHISTO is willing to accept this with equanimity. The following settings are available (TC=time control):

- TOURN 00    1.TC: 40 moves in 2 hours  
              2.TC: 20 moves in 1 hour
- TOURN 01    1.TC: 50 moves in 2 hours 30 minutes  
              2.TC: 20 moves in 1 hour
- TOURN 02    1.TC: 40 moves in 2 hours  
              2.TC: rest of game in 1 hour
- TOURN 03    1.TC: 40 moves in 2 hours  
              2.TC: rest of game in 30 minutes
- TOURN 04    1.TC: 50 moves in 2 hours  
              2.TC: 20 moves in 1 hour
- TOURN 05    1.TC: 40 moves in 1 hour 45 minutes  
              2.TC: rest of game in 15 minutes
- TOURN 06    1.TC: 35 moves in 1 hour 45 minutes  
              2.TC: rest of game in 15 minutes
- TOURN 07    1.TC: 50 moves in 2 hours 30 minutes  
              2.TC: rest of game in 30 minutes
- TOURN 08    1.TC: 40 moves in 2 hours 30 minutes  
              2.TC: 16 moves in 1 hour
- TOURN 09    1.TC: 30 moves in 1 hour 30 minutes  
              2.TC: rest of game in 30 minutes

### 3.7.2 LEVEL USER

With this option you can **program your own tournament or blitz levels**, even with different settings for MEPHISTO and for yourself. First press the ENT key, changing the \* symbol to >:

LEVEL	>USER
C1*40	IN*02:00

Now press the DOWN cursor key repeatedly. You will see the first and second time controls for the computer (C1/C2) and for the human player (P1/P2) respectively. Usually, these are the last settings previously entered. If you change the first time control for the computer, the new values will be indicated for the other three time controls as well.

C1*40	IN*02:00
C2*20	IN*01:00

P1*40	IN*02:00
P2*20	IN*01:00

Now you can reset these time limits by first activating the corresponding asterisk and then changing the values by means of the cursor keys.

When changing the **number of moves**, the cursor keys have the following functions:

The **RIGHT** and **LEFT** keys increment/decrement the number by one unit.

The **UP** and **DOWN** keys increment/decrement the number by 10 units.

The available range is from 1 to 90 moves. Instead of zero moves, the word **ALL** is displayed; this means that the entire game must be finished by that time control.

When changing the **time limits**, the cursor keys have the following functions:

The **RIGHT** and **LEFT** keys increment/decrement the time by 1 minute.

The **UP** and **DOWN** keys increment/decrement the time by 30 minutes.

The available range is from 1 minute to 90 hours. The time set for the second time control will also be used for the third and later time controls.

### 3.7.3 LEVEL MATE 01 to LEVEL MATE 16

The **mate levels** (problem levels) are intended for the solution of chess problems which require **finding a mate in a specified number of moves**. **LEVEL MATE 01** is the setting for “mate in one move”; the number of moves may be increased until the maximum of **LEVEL MATE 16** (for mate in 16 moves) is reached.

NOTE: Take care to change from the problem level to normal levels if you want to play a regular game. Otherwise, your MEPHISTO may refuse service because it is still looking for a forced mate and cannot find any.
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

### 3.7.4 LEVEL DEPTH 00 to LEVEL DEPTH 30

These **analysis levels** serve to investigate a position to a predetermined search depth. For example, **LEVEL DEPTH 00** indicates a minimum search depth (brute force) of 0 half moves and a maximum depth (selective) of 12 half moves. The maximum setting is **LEVEL DEPTH 30**, which searches to a maximum depth of 30 half-moves.

### 3.7.5 LEVEL INFIN

This is the so-called “**infinite**” level (especially for **correspondence chess**). MEPHISTO will keep analyzing until it finds a forced mate or until it reaches its maximum capacity of 30 half moves brute force and 34 half moves selective. You may, of course, interrupt its search process at any time by means of the **MOVE** command.

To reach its maximum capacity, the computer usually takes several months or even years. However, in some simple pawn endgames it may be reached in a few minutes or hours. If there is a move available from MEPHISTO’s opening book, this move will be played at once, even if the infinite level is set.

### 3.7.6 LEVEL EASY 00 to LEVEL EASY 09

These levels are intended chiefly **for beginners**. When set to one of these levels, the computer will sometimes refrain from playing the best move (“on purpose”, as it were, to give beginners a better chance) and even make occasional mistakes. On **LEVEL EASY 00**, mistakes occur frequently and are of a rather serious nature; as you go up towards **LEVEL EASY 09**, they become less frequent and less important. The computer takes about 2 seconds per move on average.



When playing on these levels, please don't use the **NEXTB** option, since ignoring the best moves from the move list is already part of the computer's easy level strategy.

### 3.7.7 LEVEL HANDC 00 to LEVEL HANDC 09

Set to one of these **handicap levels**, the computer will adapt itself to the time registered on its opponent's clock, allotting itself more or less time at a certain ratio. This means that the human player's thinking time is multiplied by a constant factor. However, this factor is not applied at every single move but only on average for the overall duration of the game. Possible settings are:

<b>HANDC 00</b>	Computer uses 10% of the player's time
<b>HANDC 01</b>	Computer uses 20% of the player's time
<b>HANDC 02</b>	Computer uses 30% of the player's time
<b>HANDC 03</b>	Computer uses 40% of the player's time
<b>HANDC 04</b>	Computer uses 50% of the player's time
<b>HANDC 05</b>	Computer uses 60% of the player's time
<b>HANDC 06</b>	Computer uses 80% of the player's time
<b>HANDC 07</b>	Computer uses the same time as the player
<b>HANDC 08</b>	Computer uses 150% of the player's time
<b>HANDC 09</b>	Computer uses 200% of the player's time

### 3.7.8 LEVEL BLITZ 00 to LEVEL BLITZ 09

These are **quickplay levels**, indicating that the entire game must be finished by the time given. The chess clocks in the display always show the time remaining until the end of the game (**countdown mode**). If you exceed your time limit, **MEPHISTO** will claim a win on time, but you may continue the game if you wish. Possible settings are:

<b>BLITZ 00</b>	2 minutes per side for the entire game
<b>BLITZ 01</b>	3 minutes per side for the entire game
<b>BLITZ 02</b>	5 minutes per side for the entire game
<b>BLITZ 03</b>	7 minutes per side for the entire game
<b>BLITZ 04</b>	10 minutes per side for the entire game
<b>BLITZ 05</b>	15 minutes per side for the entire game
<b>BLITZ 06</b>	20 minutes per side for the entire game
<b>BLITZ 07</b>	30 minutes per side for the entire game
<b>BLITZ 08</b>	45 minutes per side for the entire game
<b>BLITZ 09</b>	1 hour per side for the entire game

## 3.8 SETUP

The **SETUP** command permits you to **change an existing position or set up a new one**. The procedure is different in the case of the Bavaria board on the one hand and of the Modular, Exclusive and München boards on the other hand.

All the options of this sub-menu may be activated either via the sensory board or via the keys, the former method being the more comfortable one. The **SETUP** option is activated in the accustomed fashion by marking it with the cursor and pressing **ENT**. Then you will see the following sub-menu:

```
CHGBD CLRBD NEWG
*  ♔      *  --
_
```

The different options offered by **SETUP** Mode will be discussed below:

3.8.1 Changing a position

3.8.2 White or Black to play

3.8.3 Setting up a new position

3.8.4 Setting up a position on the Bavaria board

3.8.5 Illegal positions

### 3.8.1 Changing a position

The cursor is on **CHGBD**. Pressing **ENT** will move the cursor down one line and at the same time change the \* before the king symbol to >.

```
CHGBD CLRBD NEWG
> ♔      *  --
_
```

To the right of the > symbol, you can see either a horizontal bar (for a white piece) or a solid rectangle (for a black piece). Beside it there is a **piece symbol**.

Whenever **CHGBD** is activated, you can change the type of piece displayed by **lifting a piece of the desired type from the board**. For example, if you lift a white pawn from the board, you will see a horizontal bar (for white) and the piece symbol for a pawn in the display. At the same time, the LEDs on all squares with white pawns on them will be **lit steadily**. If, on the other hand, you have lifted a black piece from the board, the corresponding LEDs will start **flashing**.

By lifting a piece from the board, you **remove** it from the computer's internal memory. Note that there is now the symbol for a white pawn in the display; if you set the pawn down on some other square, you will thereby have **relocated** it. In order to **add a piece** to the position, first lift a piece of the same type from the board and set it down again, then place the additional piece on the desired square. If, however, there is no piece of the desired type on the board at the moment, you will have to use the cursor keys in the following way:

The two **vertical** cursor keys serve to **switch from White to Black** and vice versa; the **horizontal** cursor keys serve to **change the piece symbol** in the following order: king, queen, rook, bishop, knight, pawn, king, ... etc.

The square on which the last piece was entered is indicated in the display on the right (next to asterisk).

### 3.8.2 White or Black to play

The colour of the last piece displayed before leaving **SETUP** determines whose move it will be in the new position. If you want to give the move to White and the solid rectangle (for a black piece) is currently displayed, briefly lift a white piece from its square and replace it, thereby changing the colour indicator to the horizontal bar (for white). Then you can leave **SETUP** Mode and return to the main menu by pressing **CL** twice.

**REMEMBER:** The colour displayed just before leaving **SETUP** Mode determines whose turn it is to move.

### 3.8.3 Setting up a new position

To enter a new position, set up the pieces in the starting position and activate **CHGBD**. Then remove all pieces that are not needed and relocate the rest to their proper squares, if necessary. Make sure that the correct colour is to play and leave **SETUP** Mode. You can now start playing from the new position.

If, however, you want to set up a position with very few pieces on the board, we recommend a different method. After calling up the **SETUP** sub-menu in the manner described above, move the cursor to **CLRBD**. By pressing **ENT**, you can now activate this option and thus clear **MEPHISTO's** internal board (this will be indicated by a tone signal), preparing it for input of a new position. Then activate **CHGBD** and place the white king on its square (the symbol for the white king being the first piece symbol to be displayed after **CHGBD** is activated). Then change to the other piece types by means of the cursor keys and place the corresponding pieces on the board. When you have finished, make sure the right colour is to move and leave **SETUP** Mode.

### 3.8.4 Setting up a position on the Bavaria board

Set up the desired position before activating the **SETUP** sub-menu. Simply ignore the flashing LEDs. Activate **CHGBD** and make sure the right colour is to move (by lifting a piece of the desired colour from the board and replacing it). As soon as you leave **SETUP** by means of **CL**, the new position will be stored in the computer's internal memory.

If you want to enter an additional piece that isn't physically available (such as a second queen or a third knight), you have to use one of the special **wild card pieces**. (There is one white and one black wild card piece in the set of chessmen supplied with your computer.) First switch the display to the type of piece you wish to add (e.g. by lifting a black queen from the board) and then place the wild card piece on the desired square. Always watch the piece symbol in the display; it tells you which kind of piece you may enter.

### 3.8.5 Illegal positions

**MEPHISTO** will see to it that by adding or removing pieces you don't set up illegal positions on the board (i.e. positions that are against the rules). It will not allow positions with two kings of one colour or with one of the kings missing. Likewise, pawns on its own or on the opponent's back rank will cause it to report an error, as will the presence of more than 16 pieces per side. On the other hand, it won't disapprove of two queens or four knights of the same colour, since these are perfectly possible set-ups thanks to the rule of pawn promotion.

If you try to enter an illegal position (e.g. because you have forgotten one of the kings), you will get an error message like the following:

```
ILLEGAL   KINGS
PRESS ANY KEY
```

Follow these instructions by pressing any key and correcting the position (e.g. by adding the missing king) before you play on.

## 3.9 VERIFY

If at any time you are unsure about where each piece is really located, you can carry out a **position verification**. By activating the **VERIFY** option in the main menu, we get the following display:

```
>_ ♔ C2
```

At the same time, you will notice that on the sensory board the white king's LED is steadily lit, while the black king's LED is flashing.

**REMEMBER:** When verifying a position, the white pieces are indicated by steadily lit LEDs, while the black pieces are indicated by flashing LEDs.

If you press the **UP** (or **DOWN**) key, then the black king's position will be shown in the display in an analogous fashion:

```
>■ ♔ C2
```

In the same way (or, alternatively, by briefly lifting a piece of the desired type from the board), you can check the position of all the other pieces. You get back to the main menu by pressing **CL**.

## 3.10 BOOK

This sub-menu offers you the option of **programming your own opening library**, up to 1,000 half moves. These moves will remain in memory even if the computer is turned off. Select the **BOOK** option from the main menu, and you will get a sub-menu which looks more or less like this:

```
ADD  DELET  CLEAR  
( 88%  119M )
```

This display indicates that at the moment there are 119 moves in memory and that 88% of the available memory space is still free. Now you have several options:

- 3.10.1 Enabling the programmable library
- 3.10.2 Adding variations
- 3.10.3 Clearing the entire library
- 3.10.4 Deleting specific variations
- 3.10.5 Editing the programmable opening library

### 3.10.1 Enabling the programmable opening library

In order to make use of the programmable opening library in a game, you first have to enter **OPTNS Mode** and set the **P. BOOK** option to **ON** (see section 3.11.4). If the "standard" opening library is active at the same time (which is normally advisable), the program will always give priority to the moves from your library and return to

the standard (pre-programmed) library only when it runs out of user-programmed moves.

You cannot use this mode for set-up positions; variations must always start from the basic position, although they may be of unlimited length. Theoretically, you could even prepare the computer for playing adjourned positions by entering the entire game via the sensory board and adding variations only from the sealed move onwards.

### 3.10.2 Adding variations

Start a new game and activate the **BOOK** option. Execute the moves you wish to enter as an opening variation on the board. Now activate **ADD**, and this particular variation will be added to the computer's opening memory.

You may now take back moves on the board and at any point start a new sub-variation that can again be added to the computer's memory by activating **ADD**. When you take back a move, you automatically enter **MEMO Mode** (see section 3.5), so you have to leave this mode by pressing **CL** before you start entering a new variation. So the procedure is as follows: play the first sequence of moves, activate **ADD**, then take back moves until the desired branching point is reached, press **CL**, enter the new line, activate **ADD** and so on.

The second line of the sub-menu always tells you how much memory space is still available and how many half-moves have been entered. **MEPHISTO** recognizes transpositions of moves in its programmable library, so if you later enter a variation that begins with the same moves as an earlier line, it will not duplicate the moves that are already stored.

If the variation cannot be entered for some reason (e.g. because there is no more memory space available, the variation is already in memory, because it started from a set-up position instead of the basic position or because it includes a pawn promotion), a signal will be sounded and the number of moves will remain unchanged.

### 3.10.3 Clearing the entire library

By activating **CLEAR**, you can erase the entire programmable "book" memory. You should treat this option with great care, otherwise you may suddenly be confronted with the following (probably most unwelcome) message:

ADD	DELET	CLEAR
(	100%	00M )

### 3.10.4 Deleting specific variations

Simply play the variation in question on the sensory board and then activate **DELET** by marking it with the cursor and pressing **ENT**. This will erase the last move played on the board as well as all the moves (and sub-variations) deriving from it. Here, too, you have to be very careful!

### 3.10.5 Editing the programmable opening library

You can influence the frequency with which specific variations are played or even disable some lines entirely for White or Black.

(	88%	119M	)
01	*????	* (??)	

Move the cursor down to the third line of the **BOOK** sub-menu.

Activate the left asterisk. The first move stored for the current board position will be displayed. You can now use the **RIGHT** and **LEFT** cursor keys to step through the variation forward or backward without executing the moves on the sensory board. If the current move is given in **capital letters** (e.g. C2C4), this means that there is at least one alternative move available. You can make this alternative appear by pressing the **DOWN** key. If the second move is also in capital letters, then there is another alternative that you can access by pressing the **DOWN** key again. Pressing the **UP** key will take you back to the preceding alternative. If, however, the move appears in **small letters** (e.g. g1f3), this means that there is no further alternative available. The figure next to the asterisk in the right half of the line tells you the number of the alternative move currently in the display.

The opening variations that you have stored will be played with varying probabilities. The first alternative move stored always has a 50% probability of being played, the second alternative has a probability of 25%, the following alternatives always have half the probability of the move that comes before them. The last alternative stored is always assigned the remaining probability. For example, if in some position there are 5 alternative moves stored, this means that the probabilities for these moves are as follows: 50% for the first move, 25% for the second move, 12.5% for the third move, and 6.25% each for moves 4 and 5.

If you wish, you can **change the probability** with which specific moves are played. Obviously, this is only possible when you have stored more than one alternative move. To do so, activate the left asterisk in line 3 of the sub-menu and step through the lines until the desired move appears in the display window. Now activate the right asterisk. The number next to it is the **rank of the current move** in the hierarchy of alternatives. You can now change this number in steps of 1 by pressing the **UP** or **DOWN** arrow keys. Alternatives stored above or below the current one will be rearranged in accordance with this move's new rank.

You can also **disable** specific moves. This means that the move in question will **not be played actively** by the computer but only recognized and answered accordingly when played by its opponent. In order to disable a move, press the **RIGHT** cursor key while the > symbol is active in the right half of line 3. A minus sign will be added to the rank number of the current move, signalling that this move is part of the computer's **passive** opening book only. Moves with a minus sign always have zero probability, i.e. they don't count for the calculation of the probabilities of several alternative moves.

Likewise, you can **increase** the probability of a move. To do this, press the **LEFT** cursor key while the > symbol is active in the right half of line 3. An exclamation mark will be added to the rank number of the current move to show that its probability has been increased by half. However, exclamation marks have no effect if there are no more alternatives stored below the move currently displayed.

As an example, let's assume you have entered the following alternative moves for the starting position: E2E4 (1-), D2D4 (2 ), C2C4 (3!) and g1f3 (4 ). The first move (E2E4) will not be played by the computer, because it has been disabled (the minus sign!). The second move, D2D4, therefore has a probability of 50%. The third move (C2C4) is accompanied by an exclamation mark, so its probability is 25%+12,5%, or 37.5%. The last move stored has the remaining probability, i.e. 12.5%.

## 3.11 OPTNS

This menu item comprises a number of **special options** that you can select from a sub-menu, changing the settings if desired. First activate **OPTNS** in the main menu (by means of the cursor keys and **ENT**), which will cause the following sub-menu to appear:

*LANGUAGE	ENGLISH
*INVERT	OFF

Move down the menu with the cursor keys and mark the desired option. Then activate it by pressing **ENT** (\* changes to >). Now you can use the cursor keys to change the setting to the desired value. Finally, confirm your choice by pressing the **ENT** key, whereupon > will change back to the \* symbol.

The following special options (given below with their default settings) are available:

3.11.1	LANGUAGE	ENGLISH
3.11.2	INVERT	OFF
3.11.3	SOUND	ON
3.11.4	BOOK	RANDOM
3.11.5	BOOK S.	NORMAL
3.11.6	P. BOOK	OFF
3.11.7	RESIGN	ON
3.11.8	RANDOM	OFF
3.11.9	LEARNER	OFF
3.11.10	P. BRAIN	ON
3.11.11	HASH	ON
3.11.12	STYLE	ACTIVE
3.11.13	SELECTVE	12
3.11.14	♟ STRUCT	ON
3.11.15	♟ VAL	100%
3.11.16	♞♟♝♞ VAL	100%
3.11.17	CONTEMPT	OFF
3.11.18	TIME ADJ	OFF
3.11.19	OPERAT T	OFF

### 3.11.1 LANGUAGE ENGLISH

With this option, you can choose the **language of communication** with your **MEPHISTO**. Originally, your **MEPHISTO** is set to the German language (**SPRACHE DEUTSCH**), and this setting will remain in effect until you do something about it. When the option is active, pressing the **RIGHT** cursor key repeatedly will change the setting first to **LANGUAGE ENGLISH**, then to **LANGUE FRANCAIS**, then to **LING ITALIANO**, then to **TAAL NEDERLANDS** and finally back to **SPRACHE DEUTSCH**.

### 3.11.2 INVERT OFF

This special option was already mentioned in the introductory section. You need it if you want to play against **MEPHISTO** **with the black pieces from the bottom of the board**, so you can sit in your accustomed position in front of the board. Activate the option and change the setting to **ON**.

In this case, MEPHISTO turns its “internal” board around by 180 degrees. Obviously, the numbers and letters designating the ranks and files on the sensory board are no longer valid! The square H8, for instance, is now the leftmost square on the lowest rank. MEPHISTO automatically allows for this in its display.

The Bavaria board recognizes automatically whether you have set up the pieces in the normal or inverted position and activates the **INVERT** option whenever necessary.

### 3.11.3 SOUND ON

In certain situations (e.g. when the computer has decided on a move, in case of an illegal input or when the chess tutor option is on) MEPHISTO will sound a beep to attract your attention. If you find this disturbs your concentration, you can avoid it by **turning off the sound generator**. Pressing any cursor key will switch to **SOUND OFF**.

### 3.11.4 BOOK RANDOM

With this option, you can influence the way the computer makes use of its opening library (or “book”). When set to **RANDOM**, the computer will choose from among the 17,000 variations stored in its memory. Another possible setting is **TOURN**, which means that the computer will use a special **tournament library**, which contains only variations that are well suited to the computer’s playing style and will therefore improve its tournament performance. The book option is set to **TOURN** automatically whenever you select one of the following types of playing levels: **TOURN**, **BLITZ** or **USER**.

You can **disable** the computer’s opening book completely by setting this option to **OFF**. In that case, the computer will calculate its opening moves independently of its pre-programmed library.

### 3.11.5 BOOK S. NORMAL

MEPHISTO VANCOUVER offers you the unique possibility of choosing between six different opening books. The default setting is **NORMAL** (this is the large library, containing all variations). By activating **BOOK S.** (= book style) you can change the type of opening book. MEPHISTO offers you the choice between following opening books:

**HUMAN**: an opening library specially made for playing against human players. When you play MEPHISTO, this book will give you the toughest opposition in tournament play. If you play with MEPHISTO in a tournament against human players, we advise you to use this opening book.

**GAMBIT**: for lovers of gambitplay this book has been developed. MEPHISTO prefers sharp gambit lines.

**CLASSIC**: when you choose this library, MEPHISTO will answer 1 ...e5 to 1 e4 and 1 ...d5 to 1 d4 only.

**MODERN**: choosing this opening book you force MEPHISTO to choose modern opening lines only. F.e. Alekhine, Pirc, Benoni etc.



**BLITZ**: a special library for blitz games. MEPHISTO will play extremely sharp opening lines. When you participate with MEPHISTO in a blitz tournament, we advise you to use this opening book.

By combining the book style (3.11.5) and the option **BOOK** (3.11.4) you have 12 different opening book options: each library has a tournament and a random setting.

### 3.11.6 P. BOOK OFF

With this option, you can **turn the user-programmable opening library on or off**. Pressing any cursor key will switch to **P. BOOK ON**.

### 3.11.7 RESIGN ON

If MEPHISTO considers its position hopeless, it will resign by displaying **RESIGN**. If you want to exclude this possibility, you can switch to **RESIGN OFF** by pressing any cursor key.

### 3.11.8 RANDOM OFF

Normally, MEPHISTO will always **search for the strongest move**, so if you set up the same position several times, it is likely to play the same move every time if given the same amount of thinking time. Especially during the early part of the game, however, it may be desirable to get more variation. For this purpose, the computer uses a **random number generator** to select at random one of several moves of approximately equal strength. This may sometimes reduce its playing strength a little.

Pressing any cursor key will switch to **RANDOM ON**. This setting **disables the best move option** and thus **activates the randomizing option**. This does not apply to the opening phase: while the computer is playing from its opening library, the randomizing option is always on.

### 3.11.9 LEARNER OFF

This **chess tutor option** is chiefly intended for beginners. In order to make any sensible use of it, you have to give the computer enough time to analyze the position to a reasonable depth. Level **NORML 02** is the minimum we recommend.

(By the way: it is not possible to combine the chess tutor and auto play options, since it makes no sense for MEPHISTO to warn itself of weak moves!)

If MEPHISTO finds fault with one of your moves, it will announce this to you (usually after analyzing the position for some time). Four beeps will be sounded as a warning and four question marks (????) will appear in the display. You may get up to 5 lines of information, as in the following example:

????	CONTI	BACK
7.96	E8F7	F1C4

7.96	E8F7	F1C4
F7E8	B1C3	F1C4

!!!!	F1C4	G8F6
B1C3	C6D4	----

- Line 1: Sub-menu with the options **CONTI** (continue) and **BACK** (take back)
- Lines 2+3: Position evaluation and the variation with which MEPHISTO intends to “punish” you for your (weak) move.
- Lines 4+5: MEPHISTO’s recommended improvement (here F1C4) with the anticipated main line.

If you now want to take back your criticized move, activate **BACK** by means of the cursor and **ENT**. This deletes your last move; at the same time, the square LEDs indicate how to take it back on the board. Having done this, you may then play another move (e.g. the one recommended by MEPHISTO).

If, however, you decide to stick to your original move in spite of MEPHISTO’s remonstrations, you may activate **CONTI** or press the **CL** key. This will cause MEPHISTO to resume its calculations from where it left off to display its warning; its clock is also restarted.

NOTE: The chess tutor has its obvious limitations. As a rule, it will only warn you of very grave mistakes which cause the position evaluation to drop dramatically. As we have said before, some information (e.g. recommended moves) may not be displayed if there is too little time for calculation. Likewise, not every move is necessarily followed by an entire variation, especially if the refutation is already evident from the answering move. Since the chess tutor option is based on MEPHISTO’s position evaluation, it cannot work in those cases when MEPHISTO doesn’t register any evaluation. This is true whenever the preceding move has been made from the opening library, when a move has just been taken back or a position has been set up, or when you made your last move so fast that the program was not able to use your thinking time for its own calculations.

### 3.11.10 P. BRAIN ON

Like most modern chess computers, your MEPHISTO has a so-called “**permanent brain**” feature, which means that it goes on thinking about the position even when it is your turn to move. This feature may give the computer a lot of additional time for analysis. If you take a long time deciding on your move, it may well answer “from the hip”, and maybe even with a very strong move!

By disabling the “permanent brain” feature, you take this additional computation time away, which of course reduces the computer’s overall playing strength somewhat. Activate the option by the usual routine, then press any cursor key to toggle the setting (going from **P. BRAIN ON** to **P. BRAIN OFF** and vice versa). Setting this option to **OFF** will also prevent the computer from using its hash tables (see following section) while you are thinking about your move. They will be re-enabled only when the computer starts analyzing.

### 3.11.11 HASH ON

Your MEPHISTO is among the very few top chess computers featuring so-called **hash tables**. This term refers to a special, suitably organized part of the working memory that serves to store analyzed positions together with their evaluations in a particularly economical and easily accessible fashion. If in the course of its analysis MEPHISTO meets (by transposition of moves) a position it has already analyzed, it can retrieve the corresponding evaluation in a flash without having to calculate the entire line afresh.

This is particularly effective in endings, as you can find out for yourself by experimenting a little.

Disabling this part of the working memory (by pressing **ENT** and any cursor key) will make the program slower and consequently weaker.

### 3.11.12 STYLE ACTIVE

Your **MEPHISTO VANCOUVER** offers you a choice of **three different playing styles** (use the **LEFT** and **RIGHT** keys to select the desired setting). You may choose among:

STYLE ACTIVE  
STYLE SOLID  
STYLE RISKY

The recommended setting - the one used for winning the world championship - is **ACTIVE**. This is the style that gives the best overall results; **MEPHISTO VANCOUVER** will play actively and exert a lot of pressure on its opponent. **SOLID** stands for a more strategically oriented style of play that prefers security and avoids any unnecessary risks. Choosing **RISKY** will lead to more aggressive play; the program may be quicker to spot hidden combinations, but obviously its quota of mistakes will also rise.

### 3.11.13 SELECTIVE 12

In the default setting your **MEPHISTO VANCOUVER** always calculates a maximum of 12 half moves selective. By choosing the option **SELECTIVE** you can change the selective search depth. You can choose between **0, 2, 4, 6, 8, 10** and **12** half moves. When you reduce the number of selective plies, **MEPHISTO** has more time available to calculate "full width" (this means: calculating all possible variations) and it often happens that **MEPHISTO** will play different moves compared with the default setting (12).

Note: the default setting, 12 half moves, is the strongest setting

### 3.11.14 ♙ STRUCT ON

The **pawn structure database** is at the core of the positional chess knowledge of your **MEPHISTO VANCOUVER** program. It contains information on the optimal placing of pieces in relation to typical pawn structures in the opening and the middle game. Disabling this option will usually reduce the computer's playing strength somewhat; however, in certain positions with combinational possibilities its performance may actually be improved.

### 3.11.15 ♙ VAL 100%

This option allows you to directly influence the program's position evaluation by changing the value it assigns to a pawn. You can change the setting in steps of 10 from 50% to 150%. For example, a setting of 70% means that the loss of a pawn will be evaluated only by 0.70 points, so the computer will be more willing to sacrifice pawns for an attack or for positional compensation.

Although the default setting of 100% produces the best overall results, other settings may be preferable in certain types of position.

### 3.11.16 ♘♙♚♛ VAL 100%

These options work just like the preceding one. In this case, you can change the value assigned to each piece (knights, bishops, rooks and/or queens). You can choose a value between 50% and 150%.

### 3.11.17 CONTEMPT OFF

This feature permits you to **influence the playing behaviour of your MEPHISTO** (for tactical purposes when playing in tournaments). By means of the cursor keys, the so-called “**contempt factor**”, which is normally set to +/- 0.00, can be changed upwards or downwards in steps of 0.25 pawn units. If you set the contempt factor to a negative value, the program will play for a peaceful draw, whereas with a large positive factor it will play to avoid a draw at (almost) any price.

You can easily check the working of the contempt factor by setting up a position and having it evaluated by MEPHISTO with different settings of the contempt factor. The position evaluation will be different in each case.

When facing human players or, especially, other computers with an ELO rating of less than 2100, we recommend a setting of +0.25, which has worked well in practice. However, don't hesitate to experiment with the setting yourself!

### 3.11.18 TIME ADJ OFF

This option and the following one are specifically intended for **tournament play** and can only be used reasonably in connection with the tournament levels or similar, user-programmed levels. In tournaments, it often happens that time is lost through operating errors, lack of precision in chess clocks etc. Obviously, your computer cannot allow for such irregularities on its “internal” clock, so in order to avoid inadvertent losses on time it is possible to **adjust its “internal” clock** accordingly (“time adjust”).

At regular intervals, the words **TIME ADJ** will appear in the display for 30 seconds, together with the total time as registered internally by the computer. During these 30 seconds, you may use the horizontal cursor keys and the **ENT** key to add to or subtract from the computer's internally registered time. (Pressing the **RIGHT** arrow key will add 30 seconds to the computer's internal clock, pressing **LEFT** will subtract 30 seconds.)

It is advisable to keep the “internal” clock always 1-2 minutes ahead of the “external” chess clock, so you can be sure that MEPHISTO will never lose on time in a tournament.

### 3.11.19 OPERAT T OFF

By means of the cursor keys, the **operating time**, which is normally set to 0 seconds, may be changed as desired (to up to 20 seconds). This is especially important in official tournaments, where the program is usually set to make 40 moves in 2 hours. In such situations, you have to make allowance for the fact that executing the moves on the board and operating the chess clock also takes some time. A nimble operator with some

tournament experience may only require 7-8 seconds on average, but with a less experienced operator 15-20 seconds may be a more suitable setting.

The **RIGHT** cursor key advances by increments of 1 second, the **UP** key by increments of 5 seconds. The operating time that you have set will be added to MEPHISTO's thinking time at every move.

## 3.12 2PLAY

The **2PLAY** option enables you to **input sequences of moves for both sides**. It is intended for games between human opponents (with MEPHISTO acting as "referee"), which may simply be played on the sensory board of your MEPHISTO, or for inputting certain opening variations or master games (e.g. for training purposes).

To keep track of the game, the moves played will be both indicated by the square LEDs and shown in the display. The "referee" monitors the game to make sure that neither player goes astray (i.e. makes an illegal move, which would be signalled by a beep, whereupon the move must be taken back); moreover, it stores the whole game in memory for replaying.

If at any point you want the computer to continue the game for one of the sides, you can achieve this by activating the **MOVE** command in the main menu.

In accordance with its ever active character, MEPHISTO does more than just monitor the game: even while waiting for you to input the next move, it is constantly busy computing the best move for the side whose turn it is. If you are interested in the relevant information, then choose the **2PLAY** option together with the **INFIN** level. MEPHISTO automatically switches on the information lines 3 and 4 and provides you with the information you need. In this way you can analyse games with MEPHISTO in a very easy way: simply play through the game and watch MEPHISTO's thinking process.

## 3.13 AUTO

Another special feature that your MEPHISTO has to offer is the option of **making the computer play against itself automatically**. You don't even need to set up the pieces for this purpose. However, in the early phase of the game, while it is still choosing moves from its opening library, MEPHISTO will play too fast to follow. It is therefore advisable to make the first moves by repeated use of the **MOVE** option and switch to **AUTO** only when the computer is "out of book" (i.e. has begun to "think" on its own); or else you may wait for the computer to finish a game and then step through the moves in **MEMO** Mode.

This option is especially useful in analyzing positions where the computer looks for the best continuation not only for one but for both sides. In the case of an adjourned position, MEPHISTO will carry out an independent analysis of the position, while you can relax or do something else. When you feel the computer has analyzed the position to the required depth, you may proceed to a critical review of its accumulated "wisdom". Obviously, this only makes sense if you give the computer ample time to think, so it will be able to produce moves of suitable quality.

During automatic play, you can always refer to **INFO** Mode to find out which variation the computer is considering, how much time it has used up or what its position evaluation is. To stop automatic play, simply activate the **MOVE** option or press **CL**. If, however, you want to take over one of the sides, wait until the other side is to move

before you activate **MOVE**. **MEPHISTO** will then play the best move found so far for this colour, and it will be your turn to move for the other colour.

## 3.14 GAMES

With this option you can **store entire games in permanent memory** or retrieve them from storage. A maximum of 50 games may be stored, 20 of them complete with information about clock times and the settings of all other parameters, 30 games without additional information (i.e. only the moves are stored).

After selecting the **GAMES** option from the main menu (by means of the cursor and **ENT**), you will get a sub-menu that looks approximately like this:

```
*GAME NO. ??  
92% (NO GAME)
```

Now there are several possibilities, as usual:

- 3.14.1 Loading a stored game
- 3.14.2 Saving a game
- 3.14.3 Saving individual parameters
- 3.14.4 Deleting a game
- 3.14.5 Available memory space

### 3.14.1 Loading a stored game

The cursor is on the **\***. The display indicates that you are now free to load any of the games numbered from 1 to 50 from memory and that 92% of the available memory space is still free. First we activate the option by pressing **ENT** (**\*** turns to **>**); now we can use the cursor keys to select a specific number. By pressing the **RIGHT** key once, we get information about game number 1:

```
>GAME NO. 01(L)  
92% (1.4% 12M)
```

**MEPHISTO** is telling you that a game with 12 moves is stored under label no. 01 ("**L**" = complete with level and parameter settings), occupying 1.4% of the available memory space. By means of the **RIGHT** key, you may now step through the numbers to see which labels are taken up by stored games. When doing this, you may also get a message like the following:

```
>GAME NO. 02(L)  
92% (NO GAME)
```

This means that at present there is no game stored under label no. 02.

The horizontal keys permit you to step through the numbers one by one (e.g. use **LEFT** to go back by one unit), whereas the vertical cursor keys jump forward or backward by ten units.

Now let's **recall (load) a stored game from memory**. Use the cursor keys to move to the label of the game you want to load (e.g. no. 01). Press **ENT** (**>** turns back to **\***), then the **UP** key, and you will see the following display:

```
SAVE LOAD DELET
*GAME NO. 01 (L)
```

Activate **LOAD** by pressing the **RIGHT** and **ENT** keys, and the program will automatically enter **VERIFY** Mode, so you can set up the current position on the board by means of a position check and then continue the game. Alternatively, you can press **CL** to get to the main menu, activate **MEMO** Mode, go back to the start of the game by pressing the **UP** key and replay the stored game.

If only the starting position was stored under that label, **VERIFY** Mode will not be entered - your **MEPHISTO** is too bright for that! Instead, the program will simply report ready for play.

### 3.14.2 Saving a game

If you want to **save the current game**, proceed as in the above example but activate **SAVE** instead of **LOAD** when the display looks like this:

```
SAVE LOAD DELET
*GAME NO. 02 (L)
```

Now you have stored your current game under the label 02. If some other game was stored under that label before, it has now been overwritten. Now press the **DOWN** key twice, and in the third line you will see the updated information about the number of moves and free memory space.

### 3.14.3 Saving individual parameters

Another use of this option is the possibility of **saving your own individual parameter settings** such as certain playing levels, special options (**INVERT ON**, **SOUND OFF** etc.) or your self-programmed rotating information mode. By saving these settings together with the basic starting position under one of the labels from 01 to 20, you will be able to re-use this "stored game" whenever you wish. All you have to do is select the desired number, load the game and enter **MEMO** Mode to go to the start of the game (by means of the **UP** key, see section 3.5.3). Now you can start playing a new game with your preferred parameter settings.

This method enables you to store up to twenty different, self-programmed playing environments.

### 3.14.4 Deleting a game

If in the sub-menu shown above you activate **DELET** instead of **SAVE**, the game currently displayed (in this case no. 02) will be **erased from memory**.

### 3.14.5 Available memory space

As mentioned before, you can save up to 20 games complete with information plus up to 30 games without additional information. **These remain permanently stored even when the computer is switched off.**

Labels 01 to 20 should be used if you wish to continue the game at a later date, since clock times, playing levels etc. will remain in memory. To indicate this, you will see (L) (for "level") in the display next to the label.

If many very long games are stored, it is possible that fewer than 50 games will fit into permanent memory, since our calculations are based on an average number of 35 pairs of moves per game. Obviously, storing a sequence of moves that started from a set-up position will take up less memory space than storing a complete game.

### 3.15 DISPL

This option allows you to influence the kind of information that will be displayed by the computer. The default setting is **NORML**. Pressing any cursor key will switch to **DISPLAY ROTAT**, another keystroke to **DISPLAY USER**, then back to **DISPLAY NORML** etc.

If the setting is **DISPLAY NORML**, the standard display will be shown, i.e. the clock times for both sides (in countdown mode on some levels). Additional information may be requested at any time by means of the cursor keys.

If the setting is **DISPLAY ROTAT**, then if it is the player's turn to move, the display will also show the clock times for both sides. While **MEPHISTO** is thinking, however, the display will "rotate", i.e. change at regular intervals from clock times to search depth to position evaluation to main line of play.

By setting this option to **DISPLAY USER**, you can **program your own individually structured information mode**, which will be retained in memory for constant re-use. For each of the 13 lines that are available in **INFO Mode** (see section 3.2), there is one corresponding programming line, as shown in the following example:

The cursor is on **>DISPLAY USER**. Now press the **ENT** key and then the **DOWN** cursor key.

LINE 01	*OFF*OFF
LINE 02	*OFF*OFF

To change any setting from **OFF** to **ON**, press the **ENT** key when the cursor is on the **\*** symbol in front of the corresponding item, then any cursor key and again **ENT**.

LINE 01	*ON*OFF
LINE 02	*OFF*OFF

The result of this operation: line 1 will be displayed in **MEPHISTO's analysis phase**, but will not be displayed while it is your move (**stand-by phase**). Line 2 won't be displayed at all.

As you can see, the **left column** always applies to the **analysis phase**, the **right column** to the **stand-by phase**. In this way, you may activate or suppress any of the 13 available lines just as you desire. Whenever more than 2 lines are **ON**, the display will rotate, i.e. change at 4 second intervals.



## 4. PRACTICAL APPLICATIONS

### 4.1 TOURNAMENT PLAY

If you would like to take part in a real tournament with your MEPHISTO (or simulate one for training purposes), there are a number of things to consider. In international tournaments, the usual time controls are 40 moves in 2 hours and then 20 moves in 1 hour. This corresponds exactly to **LEVEL TOURN 00**. If none of the pre-programmed levels fits the bill, you can program a suitable level yourself by means of the **LEVEL USER** option.

In addition, we recommend that you set the following parameters (as required) in Mode:

<b>INVERT ON</b>	Only if MEPHISTO is playing Black
<b>BOOK TOURN</b>	Tournament opening library is active
<b>BOOK S. HUMAN</b>	Opening library for playing human opponents
<b>P. BOOK ON</b>	Only if you have entered your own opening variations
<b>RANDOM OFF</b>	Randomizing option is turned off
<b>CONTEMPT</b>	Set this to -.25 pawn units if you want to play for a draw against the tournament favourite, or to +.25 to play for a win against a player with less than 2100 ELO or against another computer
<b>TIME ADJ ON</b>	Enables you to adjust the computer's internal clock to the official chess clock ( <b>Important!</b> )
<b>OPERAT T ON</b>	Set operating time to about 15-20 seconds ( <b>Important!</b> )
<b>DISPL ROTAT</b>	Rotating display

Besides, we recommend the following settings: **P. BRAIN ON, HASH ON, STYLE ACTIVE, SELECTVE 12.**

### 4.2 PROGRAMMABLE OPENING LIBRARY

The programmable opening book of your MEPHISTO allows you to expand the pre-programmed opening library of your MEPHISTO VANCOUVER. However, it has quite a few other uses beyond this: it can be used for adjourned games, for changing the frequency with which certain moves are played and for the preparation of specific opening variations in tournaments.

If you are preparing for the resumption of an adjourned game, you may use the computer's programmable library to enter into memory the entire game plus all the variations you have found in the course of your analysis. Then you can replay the game from the adjourned position onwards, making MEPHISTO take over the part of your opponent. This way, you can check whether you really have all the prepared variations in your head - otherwise your preparation may well turn out to have been a waste of time!

If you want to change the frequency with which certain moves from the standard library are played, activate the programmable book option and enter those moves in the order you prefer. The program will always look into the programmable library first and only then access the standard book. If, for instance, you want to prevent MEPHISTO from playing 1.e2-e4, all you have to do is enter this move and add a minus sign. On the other hand, if you want MEPHISTO to open with 1.f2-f4 (a move which is disabled in the standard library, although there are several variations stored), you can simply enter it into the programmable library and it will henceforth be played

actively. Once the move has been enabled in this way, the program can access the opening lines beginning with f2-f4 that are stored in its main library.

In tournaments, you can use the programmable library to further restrict or modify MEPHISTO's choice of openings. Although MEPHISTO's tournament book is generally well suited for tournament play, it may well pay off to introduce special variations when you know who your next opponent is going to be. For example, if you enter only the sequence 1.e2-e4 c7-c5 into the programmable library, MEPHISTO will always open with e2-e4 when playing White and invariably reply to 1.e2-e4 with the Sicilian Defence when playing Black.

## 4.3 CHESS PROBLEMS

MEPHISTO will solve chess problems up to mate in 4 in a few seconds; longer problems may well test your patience a little. You can make it search for mates in up to 16 moves. When using the mate levels, here are a few things you should consider:

If you want to play through the variation as far as the actual mate, you will have to **execute black's answering moves** (or perhaps one of several alternative answers) on the sensory board yourself. It would not do to make MEPHISTO compute Black's moves (unless there is only one possible answer), because it is set to a mate level and would fail in its efforts to find a forced mate for Black.

If the computer fails to find a mate in the prescribed number of moves, it will sound a beep and display the message "NO MATE". In this case, check whether you have set up the position correctly, whether the right side (usually White) has the move and whether you have set the correct mate level. If you find that everything is as it should be, the conclusion must be that the problem is almost certainly incorrect.

You also have the option of making MEPHISTO **search for alternate solutions** (also called "cooks"). This is the term used to designate a second (hidden) key move which is different from the author's intended solution but leads to the same result. Such "cooks" are, by the way, a nightmare for every problem composer, because they ruin the problem's aesthetic value. **Do not execute the key move on the board** but activate the NEXTB option instead. After some time, MEPHISTO will show the alternative solution (if there is one), or else beep and display the message NO MATE. In the latter case, we know that the problem is "correct", i.e. that there are no "cooks".

## 4.4 ANALYZING WITH MEPHISTO

**Analysis of a game or position** is among the most interesting aspects of chess. If you find that you had reached a critical position in a game, you may want to explore several possible continuations. You can go back to the critical position in MEMO Mode again and again, trying out different ideas every time. The MOVE option will cause your MEPHISTO to calculate a move, and its analysis can be followed in INFO Mode. Even if you find out later that an earlier moment in the game was critical (e.g. when the fatal consequences of an opening mistake become apparent only in the endgame), MEMO Mode permits you to go back to any point and start analyzing or continue the game with a different move.

In the same way, you can review the **games of other players**, e.g. master games from books, with the help of your MEPHISTO, making the moves on the sensory board in 2PLAY Mode and in the INFIN level (information lines 3 and 4 are automatically switched ON). Whenever you reach a position that you find interesting, you may start the computer calculating by means of MOVE.

# 5. OPERATING ERRORS AND HOW TO CORRECT THEM

## 5.1 TYPICAL OPERATING ERRORS

Sooner or later, you may come to a point where you and your MEPHISTO disagree. Some of the more common error messages and their meanings have already been mentioned in the foregoing chapters. If your computer should do anything else that seems inexplicable to you, please first explore all possibilities of an error on your part before you try to have your MEPHISTO repaired. Remember: *to err is specifically human!*

On the basis of many letters and telephone calls, we have put together a list of the **most common operating errors**:

- a) Misreading the display.
- b) Making moves or changing mode while the computer is still thinking (the display is flashing).
- c) Setting up a position without first clearing MEPHISTO's internal board by means of **CLRBD**.
- d) Moving pieces on the board during play and not replacing them on the correct squares.
- e) A piece may be located "off-centre" on its square and thus hide a flashing LED from view (try looking at the board directly from above!).
- f) Sliding pieces over the board instead of lifting them from and putting them down on the appropriate squares.
- g) Moving the rook first when castling (the computer will register this as a rook move).
- h) Trying to play a game while the computer is set to a mate level.

A mistake may not always be brought to your attention immediately. If at any time you don't understand what MEPHISTO is doing or displaying, it is best to carry out a position check in **VERFY** Mode. If that won't help, you may try playing the game backward or (better) forward in **MEMO** Mode.

## 5.2 MEPHISTO'S SELF-TEST ROUTINE

If you encounter a problem that the above hints won't solve and you suspect that there is something seriously wrong with your computer, the following **self-test routine** may help you to make sure. Set up the basic position, turn on the computer and wait for MEPHISTO to display the starting menu.

CONTI NEWG RESET Mephisto Vancouver
----------------------------------------

Activate **RESET** by pressing the **RIGHT** cursor key twice and then **ENT**. This will produce the following readiness message (in German, because activating **RESET** returns all settings to their defaults; you can change this back to English afterwards by following the procedure given in the section "Changing the language of communication"):

-----  
01 \*SPIEL

Now press **CL** to go to the main menu.

INFO ZIEHT ALTER  
RÜCK START STUFE

Now press the **DOWN** key once and the **RIGHT** key twice, activate the **STUFE (=LEVEL)** option by means of **ENT**, press **ENT** again and use the **LEFT** cursor key to change the level from the default value of **NORML 00** to **NORML 02** (see section 3.7). Confirm this with **ENT** and press **CL** to go back to the main menu.

Now make the move **1.G2G4** on the sensory board (from the basic position), which will be answered immediately with **D7D5** by **MEPHISTO**. Then you play **2.F2F3**, **MEPHISTO** will calculate for a few seconds and then answer **E7E5**. Then you play the very subtle move **3.H2H3**, and **MEPHISTO** won't hesitate to checkmate you with **D8H4+**.

03 H2-H3 D8-H4+  
04 MATT

If your **MEPHISTO** performs all of this correctly, then the program itself should not be defective.

In the case of a technical fault, our service staff will of course be glad to help you. Please note down the game or the position in which the defect or the problem occurred; also make a note if your **MEPHISTO** should do anything different from what is indicated above. The more detailed your description of the problem is (listing moves, inputs, levels etc.), the easier it will be for us to find out what is wrong with your computer. Otherwise, it may prove quite impossible for us to duplicate the malfunction and thus locate the fault.

## 6. TECHNICAL DATA

<b>Microprocessor:</b>	68000 (MEPHISTO VANCOUVER 16 bit) 68020 (MEPHISTO VANCOUVER 32 bit)
<b>Clock speed:</b>	12 MHz
<b>Program memory:</b>	256 Kbyte ROM
<b>Working memory:</b>	512 Kbyte RAM (MEPHISTO VANCOUVER 16 bit) 1024 Kbyte RAM (MEPHISTO VANCOUVER 32 bit)
<b>Permanent memory</b>	Stores about 1,000 self-programmed opening moves and about 50 games (even when unit is switched off)
<b>Display:</b>	32-character dot matrix display (5x8 dots per character)
<b>Operation:</b>	Menu-driven dialogue system with 4 cursor keys and 2 control keys (ENT and CL)
<b>Program:</b>	The module can be user-exchanged or factory-reprogrammed. Lambda strategy (a mixture of Shannon A and B) with extensive chess knowledge and so-called pattern recognition of pawn structures. Opening library with about 17,000 variations (about 150,000 half-moves). Automatic recognition of transpositions and reversal of colours. Extensive use of endgame strategies.
<b>Playing levels:</b>	10 normal levels (average time per move) 10 tournament levels (different time controls) 16 problem levels (mate in 1 to 16) 30 analysis levels (variable search depth) 1 correspondence chess level ("infinite") 10 "easy" levels for beginners (makes occasional mistakes) 10 handicap levels (matches opponent's thinking time) 10 quickplay levels (with countdown mode) User-programmable level (allows user to program any desired setting of time limits and number of moves for both sides and both 1st and 2nd time controls)
<b>Chess clock:</b>	Four-time or count-down clock
<b>Power:</b>	Mains (adaptor HGN 5004A)

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