Mephisto

portorose
16 bit / 32 bit

Instructions

FOREWORD

Dear chess enthusiast,

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

At the 9th World Microcomputer Chess Championship, which was held at Portorose, Yugoslavia, from September 8th to 16th, 1989, MEPHISTO once again won the laurels for West Germany, as it had done before in Glasgow (1984), Amsterdam (1985), Dallas (1986), Rome (1987) and Almeria (1988). MEPHISTO won all categories, finishing well ahead of its competitors.

This long run of victories - unequalled in the annals of world micro-computer championships - is ample proof that Richard Lang, who is widely regarded as the best chess programmer in the world, has once again succeeded in substantially increasing the playing strength of his program, which he has been constantly revising and improving over the years.

Hardware: MEPHISTO's world champion machines are the first commercially available chess computers to have been fitted with 512 KByte (PORTOROSE 16 bit) and 1024 Kbyte (PORTOROSE 32 bit) respectively of working memory, which has permitted their computing capabilities and speed to be increased dramatically in comparison with traditional computers.

Software: The program has been improved in practically all areas:
Opening: The opening library has been increased to about 10,000 variations with about 80,000 half-moves, which makes the program even more attractive to play with.
Middle game: A more active and vigorous playing style with even better piece coordination in conjunction with even faster and deeper selective search techniques to spot possibilities for attacks and combinations.
Endgame: Improved handling of advanced and connected passed pawns as well as greater activity in the endgame. Enormous increase of computing speed due to the use of so-called hash tables.

Features: MEPHISTO PORTOROSE features a unique menu-driven dialogue system which, together with the 32-character dot matrix display, turns its operation into child's play. In addition, it provides an enormous variety of other features which will satisfy even the most demanding of customers. An interesting novelty is that it offers you a choice of three different playing styles (SOLID, ACTIVE and RISKY), which practically means that you are now the owner of three chess computers in one!

We are proud to be able to offer you the latest "state of the art" in both hardware and software. We are sure that your "devilishly" clever new chess partner will give you many hours of pleasure.

Your MEPHISTO team
Hegener + Glaser, Munich

CHANGING THE LANGUAGE OF COMMUNICATION

Initially, your MEPHISTO's display is set to the German language. If
your dealer has not changed this 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

1.1 DESCRIPTION OF MEPHISTO PORTOROSE 68000 AND 68020

The chess computers of the modular MEPHISTO family are built in a way that allows their components to be exchanged easily so they can keep up with the latest developments in computer technology. If you already own a computer of the MEPHISTO MODULAR, EXCLUSIVE or MUNICH type, all you have to do is to upgrade it by means of a PORTOROSE set of modules; this instruction manual also applies in such cases.

A look at MEPHISTO's components: The most conspicuous part is the **sensory board** 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. While unpacking your MEPHISTO, you may already have noticed that the chess pieces have a magnetic base. The sensors detect the presence of such magnets, so MEPHISTO "knows" which piece you are moving or have just moved.

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 the MEPHISTO EXCLUSIVE or MUNICH. 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. Finally, there is a third cartridge, the **adaptor module**, which contains the internal power supply.

NOTE: *you only get the adaptor module when you buy a PORTOROSE set of modules (68000 or 68020), not when buying a complete EXCLUSIVE PORTOROSE or MUNICH PORTOROSE 68000 or 68020 unit. In the latter case, you do not need an adaptor cartridge but simply connect the mains adaptor to the socket provided on the left-hand side of the computer's casing.*

There is an **adaptor socket** on the left-hand front part of the adaptor module. If you have upgraded an older unit by means of a PORTOROSE set of modules, you must use this socket rather than the socket on the side of the unit. In such cases the ON/OFF switch becomes inoperative.

NOTE: *To avoid damaging the valuable electronic components of your MEPHISTO, please use only the matching HGN 5004A mains adaptor. It is not possible to run the unit on batteries.*

Perhaps you would now like to know how to "disassemble" your MEPHISTO. Please don't forget to disconnect it from the power supply first! Now pull the drawer out of the casing as far as it will go. 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. (These steps do not apply to the MEPHISTO MODULAR, which has no drawer.) Now you can pull the cartridges out of their compartments and re-insert them accordingly. 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.

1.2 ADVANTAGES OF THE MODULAR CONCEPT

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! We recommend that the adaptor cartridge be installed on the left, so the mains cable won't get in your way.

(If you ever want to use one of the MEPHISTO 8 bit cartridges with your unit, please use the "normal" mains adaptor HGN 5001 and the corresponding socket on the side of the 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 PORTOROSE 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.

1.4 OPERATING PRINCIPLES

In this very important chapter we are going to make a detailed study of the novel operating system of your MEPHISTO PORTOROSE. 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:

1.4.1 What is a "menu-driven dialogue system"?
1.4.2 What is a "cursor"?
1.4.3 What effect do the ENT and CL keys have?
1.4.4 What is a "sub-menu"?
1.4.5 What does "activating an option" mean?

1.4.1 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:

```
┌─────────────────────────────┐
│  █ONTI NEWG RESET           │
│  Meph.  Portorose           │
│                             │
└─────────────────────────────┘
```

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.)

1.4.2 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.

<div align="center">flashing cursor</div>

```
┌─────────────────────────────┐
│  CONTI █EWG RESET           │
│  Meph.  Portorose           │
│                             │
└─────────────────────────────┘
```

1.4.3 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 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 out by pressing the CL key:

```
┌─────────────────────────┐
│                         │
│  ▓NFO 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.*

1.4.4 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 ▓EVEL         │
│                         │
└─────────────────────────┘
```

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 3.7.)

1.4.5 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 ≣TOURN 01        │
│                         │
│  C1 60 IN 00:05         │
│                         │
└─────────────────────────┘
```

The cursor is on the asterisk (*). By pressing ENT, you can activate the option, changing the * symbol to >:

> symbol: function is active

```
┌─────────────────────────┐
│                         │
│  LEVEL ≣TOURN 01        │
│                         │
│  C1 60 IN 00:05         │
│                         │
└─────────────────────────┘
```

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 three times to change the display from TOURN 01 to TOURN 04 (60 moves in 30 minutes):

```
┌─────────────────────────┐
│                         │
│  LEVEL ≣TOURN 04        │
│                         │
│  C1 60 IN 00:30         │
│                         │
└─────────────────────────┘
```

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 PREPARATIONS FOR A GAME

Once you have assembled MEPHISTO's elements to your taste (see section 1.2), make sure that the ON/OFF switch is in the OFF position (i.e. towards the back of the computer). Then plug the adaptor into the wall socket and connect the small jackplug to the adaptor socket on the side of your MEPHISTO (or on the adapter cartridge if you have one).

2.2 SETTING UP THE PIECES

You can't start playing without a set of chessmen, of course. You should always set up the pieces 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.
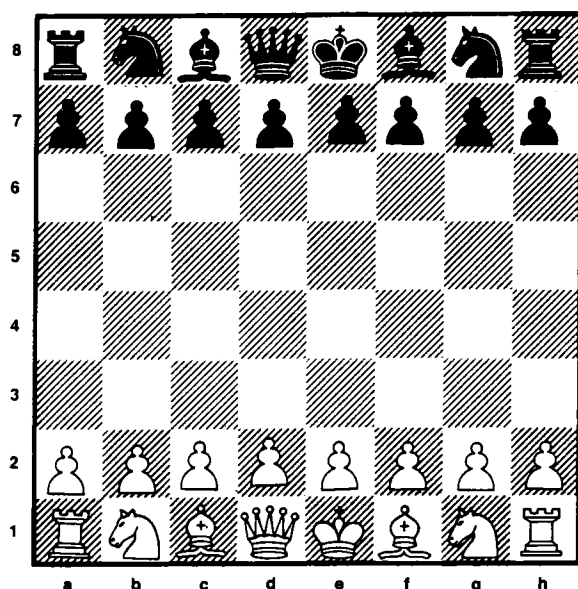
The initial position

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 3.7.2.)

If you are sure of having done everything right so far, you can now take the courageous step of turning on your MEPHISTO. If any of the pieces should happen not to be located correctly in the centre of its respective square, the LED on that square will start flashing, waiting for you to set matters right. As soon as MEPHISTO has no further objections, the starting menu will appear in the display window.

2.3 THE STARTING MENU

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

```
 ▤ONTI NEWG RESET
Meph.  Portorose
```

Moving the cursor down will produce further information:

```
▤68000  512Kbyte
!World Champion!
```

```
▤Copyright  (c)
 R. Lang 1988,89
```

This tells you that you have a PORTOROSE 16 bit unit with a 68000 microprocessor and 512 Kbyte of RAM. In an analogous fashion, the PORTOROSE 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** (see section 7.5).

Whenever you select **NEWG** from the starting menu, the following options are reset to their default values and have to be re-activated if you wish to change them: **LEARNER OFF, RANDOM OFF, CONTEMPT OFF, OPERAT T OFF**, as well as **P. BRAIN ON, BOOK ON, HASH ON** and **INVERT OFF**. In this way, MEPHISTO avoids an accidental "weakening" of its program that might otherwise go unnoticed.

(If the power is turned off while MEPHISTO is thinking, then the time spent calculating that move is lost; this is one exceptional case where MEPHISTO "forgets" its analysis. After turning the computer on again, you have to re-activate its thinking process by selecting MOVE.)

After activating **NEWG** or **RESET**, 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).

2.4 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. At the same time, the display will start flashing at one-second intervals. This means that the computer has registered your move and is now considering its reply. For the moment, you should not worry about what else is going on in the display.

When MEPHISTO has found its answering move, it will sound a beep 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 the display will stop flashing: this means that it's 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.*

2.5 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.

2.6 SPECIAL MOVES

<u>Checks:</u>   When MEPHISTO puts your king in check, it will dutifully
        announce this by displaying the internationally recognized **check**
        symbol "+", e.g. :

```
17 F3-D4  C6-D4
18 D1-H5+ ♘PLAY
```

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. Like- wise, 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
```

2.7 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**).

2.8 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.*

2.9 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 VERFY 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. When
doing this, you must not forget to restore captured pieces to
their respective squares. If you are not sure about the exact
sequence of moves, you can ask the computer for help by entering
MEMO mode (see section 3.5).

2.10 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
≣9 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.

Here is an example of a draw by insufficient material:

```
89        B2xG2+
90 G1xG2  MATL
```

2.11 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
```
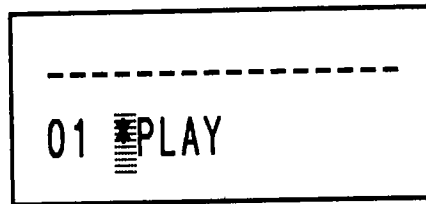
MEPHISTO is now ready to play a new game with the same settings as in the previous one. If in the last game you had inverted the (internal) board, i.e. played with the black pieces from the two bottom rows, MEPHISTO will of course expect you to set up the pieces in the same way unless you explicitly 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 3.6).

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
```

```
MEMO NEWG LEVEL
SETUP VERFY BOOK
```

```
SETUP VERFY BOOK
OPTNS 2PLAY AUTO
```

```
┌─────────────────────────────┐
│                             │
│  ░PTNS 2PLAY AUTO           │
│  ═                          │
│  GAMES                      │
│                             │
└─────────────────────────────┘
```

Now let's take a closer look at the main menu options one by one:

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	OPTNS	Activate special options
3.8	2PLAY	Enter moves for both sides (monitor mode)
3.9	LEVEL	Set playing level
3.10	SETUP	Set up a position
3.11	VERFY	Position verification
3.12	AUTO	Automatic play (computer plays against itself)
3.13	BOOK	User-programmable opening library
3.14	GAMES	Up to 50 games may be stored in memory

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:

<u>Line 3</u>: Search depth: 1 half-move full-width ("brute force") and 8 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).

<u>Line 4</u>: 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        │
└─────────────────────────┘
```

<u>Lines 5+6</u>: Continuation of the anticipated main line.

```
┌─────────────────────────┐
│  G1F3 G8F6 D2D3         │
│  ≣D7D6 C1G5 C8G4        │
└─────────────────────────┘
```

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

<u>Line 8</u>: 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        │
└─────────────────────────┘
```

<u>Line 9</u>: Continuation of the variation in line 8.

Block 3:

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

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

```
┌─────────────────────────┐
│                         │
│  C1 13;14 01;12         │
│  ▤1 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       │
│  ▤: 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 you don't like the computer's proposed move (e.g. because you've had it on the board before many times or perhaps because it is simply too strong for your taste), 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 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 you want to interrupt the taking-back process before that, you can always press CL and continue the game from the position reached at that point.

When taking back moves, you may have to **restore captured pieces** to their original squares. You will be reminded of this by the appearance of 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.

```
 - - - - - - - - - - - - - - -

≣01 MEMO
```
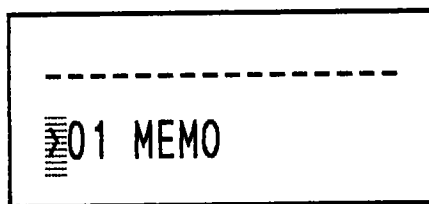
In a similar fashion, you may **jump to the end of the game** (or the current position) with one press of the DOWN cursor key.
As you can see, **MEMO** Mode offers you a comfortable way of going to any particular point in a game or a sequence of moves.

(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.)

As we already know, at the beginning of a new game the display looks like this:

```
 ---------------- 
  01 ▦PLAY
```

3.7 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  ENGLSH
 *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 are available and will be discussed below:

3.7.1	LANGUAGE	ENGLSH
3.7.2	INVERT	OFF
3.7.3	SOUND	ON
3.7.4	BOOK	ON
3.7.5	P. BOOK	OFF
3.7.6	RESIGN	ON
3.7.7	RANDOM	OFF
3.7.8	LEARNER	OFF
3.7.9	P. BRAIN	ON
3.7.10	HASH	ON
3.7.11	STYLE	ACTIVE
3.7.12	CONTEMPT	OFF
3.7.13	TIME ADJ	OFF
3.7.14	OPERAT T	OFF
3.7.15	DISPLAY	NORML

3.7.1 LANGUAGE ENGLSH

With this option, you can choose the **language of communication** with your
MEPHISTO. Originally, MEPHISTO PORTOROSE is set to the German language
(**SPRACHE DEUTSCH**), and this setting will remain in effect until you do
something about it. Pressing any cursor key will change the setting to
LANGUAGE ENGLSH, another key press back to German etc.

3.7.2 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.

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.

Let's review the basic procedure to be followed: after entering the
OPTNS sub-menu, the flashing cursor is on the * symbol in front of the
LANGUAGE ENGLSH option. So we first press the DOWN key to move it to the
following option, i.e. INVERT OFF:

```
▓INVERT      OFF
✶SOUND       ON
```

The cursor is now on the * in front of **INVERT OFF**, so we can use ENT to
activate the option:

```
▓INVERT      OFF
✶SOUND       ON
```

Pressing any cursor key will now **toggle the setting**, i.e. switch from
INVERT OFF to INVERT ON or back again to INVERT OFF and so forth.

```
▓INVERT      ON
✶SOUND       ON
```

Pressing CL twice will finalize your selection and take you back to the
main menu. You may combine this special option with any number of other
items that you wish to set to your own specifications.

3.7.3 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 make the computer shut up by **turning off the sound generator**. Pressing any cursor key will switch to SOUND OFF.

3.7.4 BOOK ON

With this option, you can **turn the computer's opening library (or "book") on or off**. We have already mentioned this option in connection with the possibility of adding your own variations to the library. Sometimes, however, you might be interested in seeing whether MEPHISTO is able to produce any fresh ideas in a well-known variation. In that case, you can find out what move it would play in a certain position independently of its library by disabling its opening book.

```
┌─────────────────────────┐
│ ▓BOOK        ON         │
│ *P. BOOK     OFF        │
│                         │
└─────────────────────────┘
```

Pressing any cursor key will switch to **BOOK OFF**.

3.7.5 P. BOOK OFF

With this option, you can **turn the user-programmable opening library on or off**. An example of how this works is given in section 3.13. Pressing any cursor key will switch to P. BOOK ON.

3.7.6 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.

3.7.7 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.

3.7.8 LEARNER OFF

This **chess tutor option**, which is certainly not an everyday feature of a chess computer, 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 TOURN 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
```

```
F7E8 B1C3 F8C5
!!!!! F1C4 G8F6
```

```
!!!! 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.*

3.7.9 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.

It goes without saying that this option may be combined with any number of other items that you wish to set to your specifications.

3.7.10 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.

3.7.11 STYLE ACTIVE

From now on, you are practically the owner of three different MEPHISTOS in one, since the new MEPHISTO PORTOROSE 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 - incidentally also the one used for winning the world championship - is **ACTIVE**. This is the style that gives the best overall results; MEPHISTO PORTOROSE 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; this style is similar to the one associated with PORTOROSE's predecessor, MEPHISTO ALMERIA. Choosing **RISKY** will lead to particularly aggressive play; the program may be quicker to spot hidden combinations, but obviously its quota of mistakes will also rise.
Experiment with these settings yourself to find out which pleases you most. Have a lot of fun!

3.7.12 CONTEMPT OFF

This novel feature permits you to **influence the playing behaviour of your MEPHISTO** (for tactical purposes when playing in tournmaments). 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 playing against 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!

3.7.13 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 levels **TOURN 02 to 09** 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.

3.7.14 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.

Activate the option by means of ENT, changing * to the > symbol. Now you
can use the cursor keys to accomplish the desired setting. The RIGHT key
advances by increments of 1 second, the UP key by increments of 5 sec-
onds. Finally, you change > back to * by pressing ENT. The operating
time that you have set will be added to MEPHISTO's thinking time at
every move.

3.7.15 DISPLAY NORML

First you have to activate the option by pressing ENT, whereupon the *
symbol changes to >. Pressing any cursor key will switch the setting 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 evalu-
ation to main line of play.

By setting this option to **DISPLAY USER**, you can **program your own indi-
vidually 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.

3.8 2PLAY

When you activate this option in the usual fashion by pressing ENT, MEPHISTO will register this in a flash and jump back to the main menu immediately.

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, you can find it in display lines 3 to 7.

You may, of course, play the game backward or forward in MEMO mode at any time, provided you first select the MEMO option from the main menu and activate it with ENT.

3.9 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 TOURN 01.

```
┌────────────────────────┐
│                        │
│  LEVEL ▓TOURN 01       │
│  C1 60 IN 00:05        │
│                        │
└────────────────────────┘
```

The different groups are listed one below the other in the sub-menu. 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 05:

```
┌────────────────────────┐
│                        │
│  LEVEL ▓TOURN 05       │
│  C1 60 IN 01:00        │
│                        │
└────────────────────────┘
```

```
┌────────────────────────┐
│                        │
│  ▓2 30 IN 00:30        │
│  P1 60 IN 01:00        │
│                        │
└────────────────────────┘
```

```
┌────────────────────────┐
│                        │
│  ▓1 60 IN 01:00        │
│  P2 30 IN 00:30        │
│                        │
└────────────────────────┘
```

In our example, both the computer (C) and the human player (P) have to make 60 moves in 1 hour until the first time control and then 30 moves in 30 minutes until the second time control.

Whenever you change the playing level, the following options are reset to their default values and have to be re-activated if desired: LEARNER

OFF, RANDOM OFF, CONTEMPT OFF, OPERAT T OFF, as well as P. BRAIN ON, BOOK ON, HASH ON and INVERT OFF. This is intended to avoid an inadvertent weakening of MEPHISTO's program.

The following playing levels are available:

3.9.1 LEVEL TOURN 00   to LEVEL TOURN 09
3.9.2 LEVEL USER
3.9.3 LEVEL MATE 01   to LEVEL MATE 16
3.9.4 LEVEL DEPTH 00   to LEVEL DEPTH 30
3.9.5 LEVEL INFIN
3.9.6 LEVEL EASY 00   to LEVEL EASY 09
3.9.7 LEVEL HANDC 00   to LEVEL HANDC 09
3.9.8 LEVEL BLITZ 00   to LEVEL BLITZ 09

3.9.1 LEVEL TOURN 00 to LEVEL TOURN 09

On these 10 tournament levels, MEPHISTO keeps its own time budget but always respects the given time controls. 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.

3.9.2 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*60 IN*00:05         │
│                         │
└─────────────────────────┘
```

Now press the DOWN cursor key.

```
┌─────────────────────────┐
│                         │
│  C1≡60 IN*00:05         │
│  C2*24 IN*00:02         │
│                         │
└─────────────────────────┘
```

Now you can set the time limits for the computer, separately for the first time control (C1) and for the second time control (C2). In our example, the following time limits have been set:

        1st time control: 60 moves in 5 minutes
        2nd time control: 24 moves in 2 minutes

To get a little practice, let's change this to the following setting:

        1st time control: 40 moves in 1 hour 45 minutes
        2nd time control: 15 minutes for the rest of the game

a) The cursor is on the * after C1.
b) Now press ENT (* turns to >), then the DOWN key twice. (The horizontal cursor keys move by units of one, the vertical keys by units of 10; so the display is now "40".) Press ENT again, and the > symbol changes back to *.
c) Now press the RIGHT key and ENT again (the * after IN changes to >). Then press the UP cursor key three times (adds increments of 30 minutes each), the RIGHT key ten times (display "01:45") and again ENT (the > symbol changes back to *).
d) The lower line automatically displays the same values as the upper line.
e) Now press the RIGHT key once and again ENT (the * symbol after C2 changes to >). Then the DOWN key four times (display "ALL" for "all moves") and again ENT (the > symbol changes back to *).
f) Press the RIGHT key and ENT again (the * symbol after IN changes to >). Then DOWN three times (subtracts blocks of 30 minutes each; display is now "00:15") and again ENT (the > symbol changes back to *). The setting for the computer's clock is now complete:

```
C1*40 IN*01:45
C2*ALL IN≣00:15
```

g) Pressing the DOWN key once will move the display down by two lines:

```
P1≣40 IN*01:45
P2*ALL IN*00:15
```

As you can see, MEPHISTO has automatically registered the same settings for your (i.e. the player's) clock. If you do not like this, you can change it as desired in the same way as described above. If everything is to your liking, press CL to get back to the main menu and start the game.

3.9.3 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.*

3.9.4 LEVEL DEPTH 00 to LEVEL DEPTH 30

These **analysis levels** serve to investigate a position to a predetermined "brute force" search depth. LEVEL DEPTH 00 searches less than one half-

move deep; the maximum is LEVEL DEPTH 30, which searches to a depth of 30 half-moves.

The latter number may seem almost incredible, but with its large amount of "hash tables" (working memory specially organized to store and retrieve information), MEPHISTO is indeed able to reach such search depths within an acceptable time span, at least in simple pawn endgames.

3.9.5 LEVEL INFIN

This is the so-called "infinite" level (especially for correspondence chess). MEPHISTO will keep analyzing until you interrupt it by means of the MOVE command.

3.9.6 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.

3.9.7 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.

The handicap settings range from HANDC 00 (=factor 10%) to HANDC 09 (=factor 200%). To give an example: LEVEL HANDC 00 means that MEPHISTO allots itself only 10% of your thinking time and thus has to play ten times as fast as you.

3.9.8 LEVEL BLITZ 00 to LEVEL BLITZ 09

These are quickplay levels, ranging from LEVEL BLITZ 00 (2 minutes for the whole game) to LEVEL BLITZ 09 (1 hour for the whole game). 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.

3.10 SETUP

The SETUP command permits you to change an existing position or set up a new one. It is activated in the accustomed fashion by marking it with the cursor and pressing ENT. Then you will see the following sub-menu:

```
┌─────────────────────────────┐
│ ▤HGBD CLRBD NEWG            │
│ ✗_ ♚      ✗——               │
│  _                          │
└─────────────────────────────┘
```
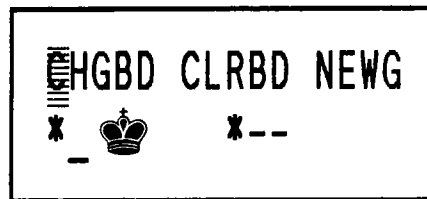
The different options offered by SETUP Mode will be discussed below:

3.10.1 Changing a position
3.10.2 Removing or relocating a piece
3.10.3 Inserting a piece
3.10.4 White or Black to play
3.10.5 Illegal positions
3.10.6 Setting up a new position
3.10.7 Quick setup

3.10.1 Changing a position

Sometimes you may feel the desire to have more pieces on the board than your electronic sparring partner - or remove those of your opponent's pieces that you find particularly annoying! You can do all of this if you like, but it should be said that the option of changing a position is chiefly intended for other, more serious purposes (especially for analysis).

The following two sections will show you how to remove or relocate pieces or insert additional pieces.

3.10.2 Removing or relocating a piece

First let us remove a piece from the basic starting position, e.g. the F8 bishop. The cursor is on the CHGBD (change board) command. Pressing ENT will move the cursor down one line and at the same time change the * before the king symbol to >.

```
┌─────────────────────────────┐
│ CHGBD CLRBD NEWG            │
│ ▤_ ♚      ✗——               │
│  _                          │
└─────────────────────────────┘
```
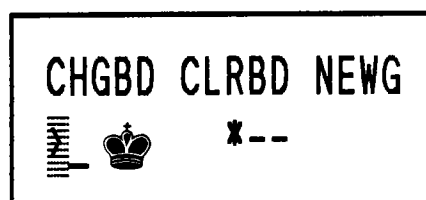
From now on, the cursor keys will have the following functions:

REMEMBER: *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 (from left to right): king, queen, rook, bishop, knight, pawn, king, ... etc. White pieces are characterized by a horizontal bar preceding them, black pieces by a full rectangle.*

The pieces are represented graphically by the following symbols:

KING:

QUEEN:

ROOK:

BISHOP:

KNIGHT:

PAWN:

To **remove** the black bishop from the F8 square, all you have to do is take it from the board.

Another example will show you how to **relocate a piece** to a different square. Let's try relocating the black bishop that you have just removed from the F8 square to G5. The display will still be showing the symbol for the black bishop; simply place the piece on the square G5.

```
CHGBD CLRBD NEWG
        *G5
```

You can leave **SETUP** Mode by means of the CL key and continue the game with the bishop on G5. (Please check this!) If you are in doubt, you may do a position check in **VERFY** Mode (see section 3.11).

3.10.3 Inserting a piece

Let's assume that you want to insert a black bishop on the square F4 in a certain position (not the starting position).

```
CHGBD CLRBD NEWG
        X--
```

This is how it works: briefly lift any piece of the desired type (in this case a black bishop) from the sensory board (this will make the appropriate symbol and the coordinates of the square appear in the display), then place **a piece of the same type** (i.e. another black bishop) on the desired square (in this case F4).

If, however, there is no piece of the desired type on the board at the moment, you have to proceed in a different manner: After entering SETUP Mode, activate CHGBD by pressing the ENT key. This will move the cursor down one line and change the * symbol to >. To get the desired piece symbol (in our example a black bishop), you have to press the UP (or DOWN) key once to change colour and the RIGHT key three times. Then put the black bishop on the desired square (e.g. F4) and confirm this by pressing ENT.

3.10.4 White or Black to play

By the way: now it is Black's turn to play, because when you finalized your input by pressing ENT, the full rectangle that represents a black piece was displayed. If you want to give the move to White in this position, you have to change the rectangle to the horizontal bar (for White) before leaving SETUP Mode, e.g. by briefly lifting a white piece from its square.

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

3.10.5 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). If you allow yourself a second king, it will protest in indignation, just as it would if you tried to remove your own king to avoid being checkmated. Likewise, pawns on its own or on the opponent's back rank will drive it to distraction, 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
```
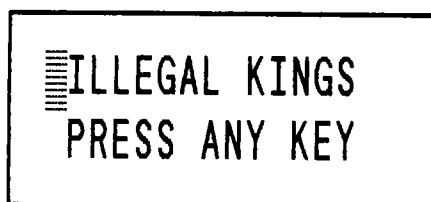
Follow these instructions by pressing any key and correcting the position (e.g. by adding the missing king) before you play on.

3.10.6 Setting up a new position

For this purpose, you first have to clear MEPHISTO's internal board, since it automatically stores the basic starting position in its memory when starting a new game. After calling up the SETUP sub-menu in the manner described above, you will see the cursor on the CHGBD command. Press the RIGHT key to 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. (If you should change your mind about this, you can always activate NEWG to start a new game.)
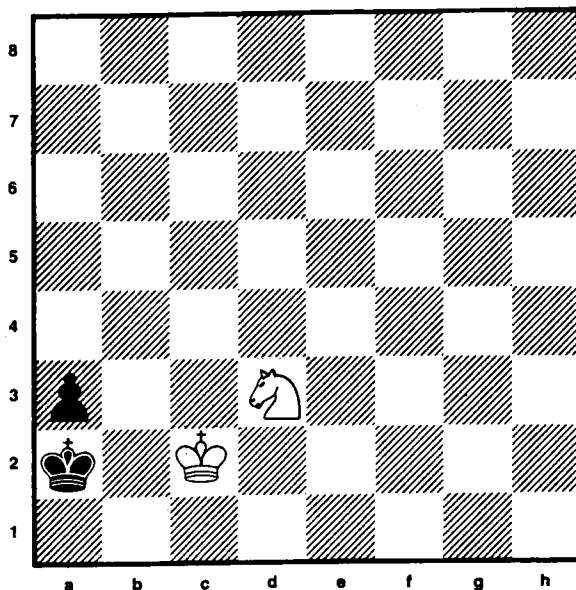
Problem by Otto Dehler
White to move and mate
in three moves

To practice the setting-up procedure a little, we have chosen a simple
chess problem by Otto Dehler (see diagram). Let's forget about the
computer for a moment and set up the position on MEPHISTO's sensory
board.

In MEPHISTO's display window, you will see the symbol for a white king.
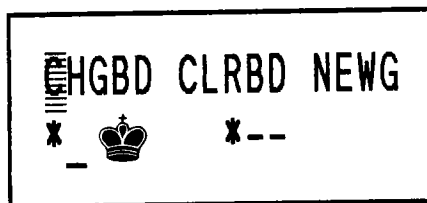
The cursor is still on **CLRBD**. Press the DOWN key, then ENT (* turns to
>) and lift the white king slightly from the square C2, then replace it.
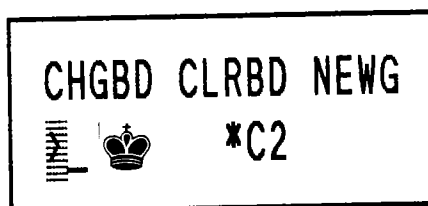

Now press the RIGHT cursor key four times (so the knight symbol appears
in the display) and briefly lift the knight from the square D3.
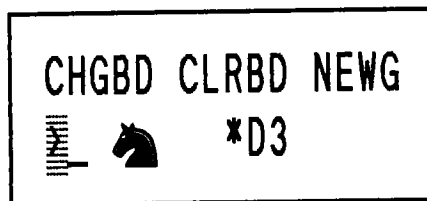
Now press the UP (or DOWN) key to change colour, then the LEFT key four
times (to go back to the king symbol) and slightly lift the black king
from the square A2.

```
┌─────────────────────────────────┐
│  CHGBD CLRBD NEWG               │
│  ▤█ ♚      *A2                  │
└─────────────────────────────────┘
```
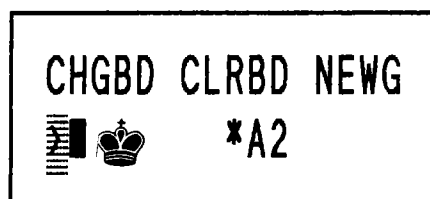
Finally, press the RIGHT key five times (the pawn symbol appears) and
slightly lift the black pawn from the square A3.

```
┌─────────────────────────────────┐
│  CHGBD CLRBD NEWG               │
│  ▤█ ♟      *A3                  │
└─────────────────────────────────┘
```
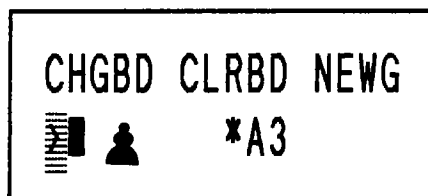
Have we finished now? Wait a second - we want it to be White's turn to
move in the problem! So press the UP (or DOWN) key to change the full
rectangle (which characterizes the black pieces) to the horizontal bar
(which indicates a white piece). Then press ENT (> changes back to *) to
finalize your input and CL to return to the main menu. You may now start
playing from the newly entered position. If you are not sure you have
set up the position correctly, you can do a position check in **VERFY** Mode
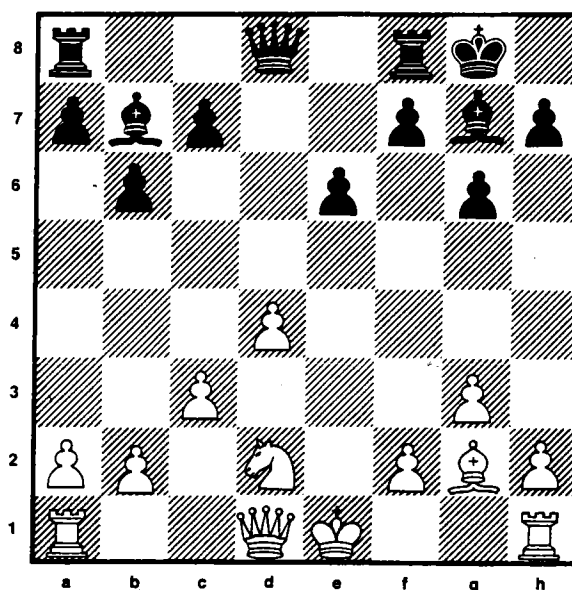(see section 3.11).

You may now set the computer to problem level **MATE 03** in **LEVEL** Mode and
start it working on the problem by activating **MOVE**. The key move of the
solution will appear in less than a second. The discussion of this chess
problem will be continued in section 4.3.

3.10.7 Quick setup

Apart from the method described above, there is another very convenient
way of setting up a position, especially when there are still many
pieces on the board. Start from the basic position and call up the **SETUP**
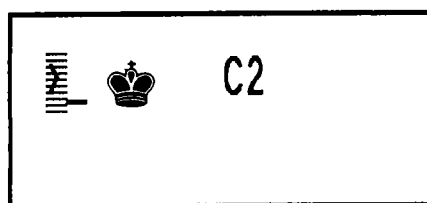sub-menu as described above (change * to > by activating **CHGBD**).

```
┌─────────────────────────────────┐
│  CHGBD CLRBD NEWG               │
│  ▤_ ♚      *--                  │
└─────────────────────────────────┘
```
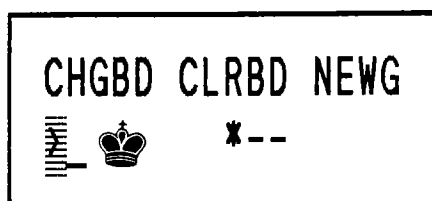
Here is an example:


```

Now all you have to do is to **relocate** the pieces you need to the desired squares and **remove** those that you don't need. Starting from the basic position, this is really child's play: For White, remove the E2 pawn, one knight and one bishop from the board. Then shift the c pawn to C3, the d pawn to D4, the G pawn to G3, the remaining knight to D2 and the bishop to G2. Proceed accordingly with the black pieces. Make sure that the correct side is to move, press the ENT and CL keys, and the set-up is complete. There really isn't a simpler way of doing it!

## 3.11 VERFY

Let's use the problem by Otto Dehler to carry out a **position** verification. By activating the **VERFY** option in the main menu, we get the following display:

```
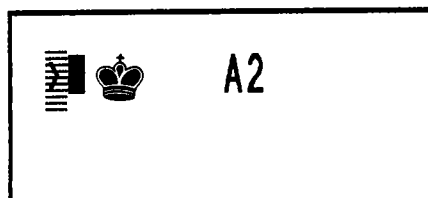┌─────────────────────────────┐
│   │
│   ♜♜   ♚   C2   │
│   │
└─────────────────────────────┘
```

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:

```
┌─────────────────────────────┐
│                             │
│   ♜       ♚      A2          │
│                             │
└─────────────────────────────┘
```

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.

As an exercise, you may like to check the starting position by going through the white and black pieces one by one.

3.12 AUTO

Another special feature that your MEPHISTO has to offer is the option of **making the computer play against itself automatically.** Essentially, you wouldn't even need to set up the pieces for this purpose. Especially 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.

3.13 BOOK

An interesting feature of MEPHISTO PORTOROSE is the option of **programming your own opening library**, up to 1,000 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:

```
┌─────────────────────────┐
│                         │
│  ▤DD 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:

3.13.1 **Enabling the programmable library**
3.13.2 **Adding variations**
3.13.3 **Clearing the entire library**
3.13.4 **Deleting specific variations**
3.13.5 **Using the programmable opening library**

3.13.1 **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 3.7.4).

```
┌─────────────────────────┐
│                         │
│  ▤BOOK          ON      │
│  *P. BOOK       ON      │
│                         │
└─────────────────────────┘
```

If this option hasn't already been set to ON, you must first do so by pressing ENT, the RIGHT key and again ENT.

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 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.

3.13.2 Adding variations

First activate 2PLAY Mode in the usual manner (since this is the only way of entering a sequence of moves). Then play the desired variation on the sensory board and activate ADD by marking it with the cursor and pressing ENT. As soon as you have entered the new variation, the display will show the new total number of moves.

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.

3.13.3 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 )         │
└─────────────────────────┘
```

3.13.4 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!

Here's an example to illustrate the procedure. Let's assume that the programmable opening library contains the following sequences of moves:

1.E2E4 E7E5	2.G1F3 B8C6	3.F1B5 A7A6
	2.- - G8F6	3.B1C3
	2.- - D7D6	3.D2D4
1.D2D4 D7D5	2.C2C4 E7E6	3.B1C3 C7C6 4.G1F3 G8F6
1.G1F3 E7E6	2.G2G3	

a) By playing 1.E2E4 E7E5 2.G1F3 B8C6 on the board and activating DELET, you erase the moves 2.- - B8C6 3.F1B5 A7A6.

b) By playing only 1.D2D4 on the board and then activating DELET, you erase the moves 1.D2D4 D7D5 2.C2C4 E7E6 3.B1C3 C7C6 4.G1F3 G8F6.

c) By playing only 1.E2E4 on the board, you erase the whole variation:
1.E2E4 E7E5   2.G1F3 B8C6 3.F1B5 A7A6
                      2.- -   G8F6 3.B1C3
                      2.- -   D7D6 3.D2D4

3.13.5 Using the programmable opening library

The moves are stored in the above format, i.e. in our example there would be exactly 21 moves stored. The program also recognizes transpositions of moves, even if they transpose into the "standard" opening library. The variations that were entered first are given priority over later entries, so they are played more often.

If you want to check the variations you have entered, you can do so in the following way: first de-activate the standard opening library (BOOK OFF in OPTNS Mode), then make MEPHISTO play out its variations by means of MOVE and NEXTB.

3.14 GAMES

With this new 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:

```
≣AVE LOAD DELET
*GAME NO. 01 (L)
```

Activate **LOAD** by pressing the RIGHT and ENT keys, and the program will automatically enter **VERFY** 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, **VERFY** 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:

```
┌─────────────────────────────┐
│ ≣AVE 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 infor-
mation 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.

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 08**. If none of the pre-programmed levels fits the bill,
you can program a suitable level yourself by means of the **LEVEL USER**
option (see section 3.9.2).

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

INVERT ON	Only if MEPHISTO is playing Black
BOOK ON	Standard opening library is active
P. BOOK ON	Only if you have entered your own opening variations
RANDOM OFF	Randomizing option is turned off
CONTEMPT	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
TIME ADJ ON	Enables you to adjust the computer's internal clock to the official chess clock (**Important!**)
OPERAT T ON	Set operating time to about 15-20 seconds (**Important!**)
DISPLAY ROTAT	Rotating display

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

4.2 BLITZ OR QUICKPLAY CHESS

There are 10 quickplay levels, ranging from **LEVEL BLITZ 00** (2 minutes
for the whole game) to **LEVEL BLITZ 09** (1 hour for the whole game). Both
clocks will be shown in countdown mode. If the opponent exceeds his time
limit, MEPHISTO will claim a win on time but allow the game to be
continued if so desired.

All of this presents no problems as long as you play on MEPHISTO's
sensory board. However, in some tournaments this is not permitted and
the operator is required to execute the computer's moves on a normal
chess board and use a normal chess clock. In such cases, you are likely
to come under heavy pressure, because it isn't easy to handle two
chessboards and the chess clock at the same time. Even an experienced
operator will need about 2 extra minutes per game. Therefore you should
bring this problem to the attention of the tournament director and
request additional operating time on the clock, especially if the total
time is less than 15 minutes for each side.

Let's consider an example: You are playing 5-minute games in a
tournament with your MEPHISTO. The tournament director has refused to
grant you extra time, so to be on the safe side you have to limit
MEPHISTO's thinking time to 3 minutes per game, which corresponds to
LEVEL BLITZ 01. Select LEVEL from the main menu, confirm this with ENT

and change the * symbol to > by pressing ENT once more. Now press the UP
or DOWN key several times until you see a blitz level in the display.

```
┌─────────────────────────────┐
│                             │
│   LEVEL ▤BLITZ 00           │
│   C1 ALL IN 00:02           │
│                             │
└─────────────────────────────┘
```

Now select LEVEL BLITZ 01 by pressing the RIGHT key once.

```
┌─────────────────────────────┐
│                             │
│   LEVEL ▤BLITZ 01           │
│   C1 ALL IN 00:03           │
│                             │
└─────────────────────────────┘
```

MEPHISTO is now set to make all its moves within 3 minutes, as required.
Finalize your input with ENT and go back to the main menu by pressing
the CL key.

If MEPHISTO is supposed to play with the black pieces, don't forget to
invert its internal board (see section 3.7.2).

4.3 CHESS PROBLEMS

In the chapter on "Setting up a position" (section 3.10.6) we already
saw an example of a mate problem. MEPHISTO will solve chess problems up
to mate in 6 rather quickly; longer problems may well test your patience
a little.

Problem by Otto Dehler:
White to move and mate
in three moves

You already know how to set up the position; now we will go through this
rather simple example step by step. Please see to it that when you exit
from SETUP Mode, it is White's turn to play (horizontal bar!).

Now we select the appropriate mate level, in this case LEVEL MATE 03. The search for the mate is started by activating MOVE - the usual procedure when we want MEPHISTO to make a move. The key move (D3-B4+) will appear in less than a second; the anticipated continuation may be viewed in INFO Mode.

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.

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. As you already know, information about search depth, position evaluation and the main line is available in **2PLAY** Mode as well. Whenever you reach a position that you find interesting, you may start the computer calculating by means of **MOVE**.

Of especial interest is the **analysis of variations from opening theory**. As already mentioned, your MEPHISTO has an enormous "opening book", so that during the first few moves it will simply have recourse to its storehouse of opening knowledge (except when the opponent's moves are extremely far-fetched). In the case of the PORTOROSE program, this library consists of about 10,000 variations with about 80,000 half-moves.

If at any point you would like to know what alternatives there are to the move played by MEPHISTO, you can use the **NEXTB** option, which will produce an **alternate move** if there is one in the library. You may repeat this operation several times; if there are no more alternatives in store, MEPHISTO will leave its opening library and start its own calculations. It is often interesting to see what moves a program would

play if left to its own devices. Of course, it frequently happens that MEPHISTO's independent calculations produce a move that is part of opening theory and thus causes the computer to return to its opening library by **transposition of moves**.

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
Meph. Portorose
```

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.

```
▓NFO ZIEHT ALTER
MEMO 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 TOURN 01 to TOURN 00 (see section 3.9). 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+
▓4 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

In case your interest extends beyond the high level of play and the great variety of features provided by your MEPHISTO PORTOROSE, here is a list of the most important technical data of your computer:

Microprocessor:	68000 (MEPHISTO PORTOROSE 68000) 68020 (MEPHISTO PORTOROSE 68020)
Speed:	12 MHz
Program memory:	128 Kbyte ROM
Working memory:	512 Kbyte RAM (MEPHISTO PORTOROSE 68000) 1024 Kbyte RAM (MEPHISTO PORTOROSE 68020)
Permanent memory:	Stores about 1,000 self-programmed opening moves and about 50 games (even when unit is switched off)
Display:	32-character dot matrix display (5x8 dots per character)
Operation:	Menu-driven dialogue system with 4 cursor keys and 2 control keys (ENT and CL)
Program:	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 10,000 variations (about 80,000 half-moves). Automatic recognition of transpositions and reversal of colours. Extensive use of endgame strategies.
Playing levels:	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)
Chess clock:	Four-time or count-down clock Time controls freely selectable
Power:	Mains (adapter HGN 5004A or equivalent)

7. SUMMARY OF DEFAULT SETTINGS AND INFORMATION DISPLAYED

7.1 The starting menu

At power-on, your MEPHISTO will report for duty with the **starting menu**:

```
CONTI NEWG RESET
Meph.   Portorose
```

Continue last game or start new game

```
68000   512Kbyte
!World Champion!
```

Indicates type of computer
(PORTOROSE 68000 or 68020)

```
Copyright   (c)
R. Lang 1988,89
```

7.2 Readiness message

After **NEWG** or **RESET**, MEPHISTO will report ready for play. You may now make your first move.

```
_____
01 *PLAY
```

Player to move (i.e. it's your turn)

7.3 The main menu

Whenever you press CL, MEPHISTO will display the **main menu**, of which there are two different forms:

Main menu in analysis phase (display is flashing):

```
MOVE INFO
BACK NEWG
```

View info, make MEPHISTO move, take back your last move or start a new game

Main menu in stand-by phase (display is steady):

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

You may choose among 13 commands (select with cursor keys, activate with ENT)

```
┌─────────────────────────┐
│  MEMO  NEWG  LEVEL      │
│  SETUP  VERFY  BOOK     │
└─────────────────────────┘
```

```
┌─────────────────────────┐
│  SETUP  VERFY  BOOK     │
│  OPTNS  2PLAY  AUTO     │
└─────────────────────────┘
```

```
┌─────────────────────────┐
│  OPTNS  2PLAY  AUTO     │
│  GAMES                  │
└─────────────────────────┘
```

INFO (information)
MOVE (computer moves)
NEXTB (alternative moves)
MEMO (play backward or forward)
NEWG (start new game)
OPTNS (set options)
2PLAY (monitor mode)
LEVEL (set playing level)
SETUP (enter position)
VERFY (check position)
AUTO (automatic play)
BOOK (store opening lines)
GAMES (store complete games)

7.4 INFO Mode display

In INFO Mode, there are up to 13 lines of information, arranged in three blocks. For example:

```
┌─────────────────────────┐
│  01  E2-E4    E7-E5     │
│  02  *PLAY              │
└─────────────────────────┘
```

Move number, previous move and last
        move played
Move number and status info (ready,
        analyzing etc.)

```
┌─────────────────────────┐
│  01/08  G1F3=04/28      │
│  0.24   B1C3  B8C6      │
└─────────────────────────┘
```

Search depth (brute f./sel.); move
being analyzed; its number on move
        list; number of legal moves
Position evaluation; first two moves
        of anticipated main line

```
┌─────────────────────────┐
│  G1F3  G8F6  D2D3       │
│  D7D6  C1G5  C8G4       │
└─────────────────────────┘
```

Next moves of main line

Further moves of main line

```
┌─────────────────────────┐
│  D7D6  C1G5  C8G4       │
│  F1E2                   │
└─────────────────────────┘
```

Further moves of main line

```
┌─────────────────────────┐
│  0.31  E2E4  G8F6       │
│  E4E5  F6D5  D2D4       │
└─────────────────────────┘
```

Position evaluation and moves
        following last (or next) move
Further moves of main line
        following last (or next) move

```
┌─────────────────────────┐
│  C1  13;14  01;12       │
│  P1  10;11  02;13       │
└─────────────────────────┘
```

Total time for computer; time for
        current move
Total time for player; time for
        current move

```
┌─────────────────────────┐
│  C:  37  M/00:46;48     │
│  P:  36  M/00:40;33     │
└─────────────────────────┘
```

Number of moves and time left until
        time control for computer
Number of moves and time left until
        time control for player

7.5 OPTNS Mode default settings

*SPRACHE	DEUTSCH	Language (German or English)
*INVERT	OFF	Invert board
*SOUND	ON	Sound signal
*BOOK	ON	Enable standard opening library
*P. BOOK	OFF	Enable user-programmable library
*RESIGN	ON	Resigns in hopeless positions
*RANDOM	OFF	Enable randomizing function
*LEARNER	OFF	Enable chess tutor function
*P. BRAIN	ON	Thinks on opponent's time
*HASH	ON	Enable hash tables
*STYLE	ACTIVE	Set playing style
*CONTEMPT	OFF	Set drawing factor
*TIME ADJ	OFF	Enable time adjust function
*OPERAT T	OFF	Set operating time
*DISPLAY	NORMAL	Set type of display (may be changed to rotating or user-programmable)

7.6 LEVEL Mode default settings

LEVEL *TOURN 01	10 tournament levels with preset number of moves per time span
LEVEL *USER	User-programmable level
LEVEL *MATE 01	16 mate levels (mate in 1 to 16)
LEVEL *DEPTH 00	31 fixed search depth levels (0 to 30 ply)
LEVEL *INFIN	"infinite" (analysis) level
LEVEL *EASY 00	10 easy levels (makes occasional mistakes)
LEVEL *HANDC	10 handicap levels (matches opponent's time)
LEVEL *BLITZ 00	10 quickplay levels (from 2 min. to 1 hr. per game)

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7. SUMMARY OF DEFAULT SETTINGS AND INFORMATION DISPLAYED

MEPHISTO is the registered trademark of HEGENER+GLASER AG, Munich.