

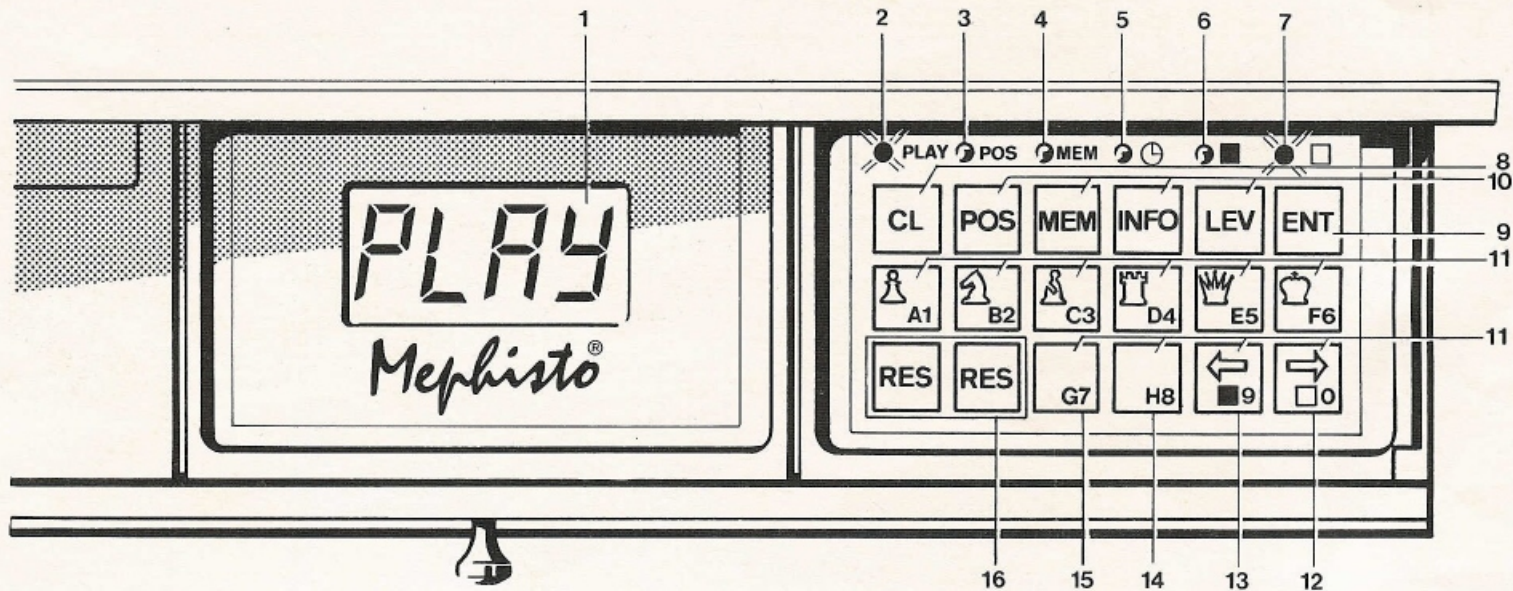
instructions

Mephisto®

modular IV
exclusive IV
münchen IV

TECHNICAL DATA and ACCESSORIES

Microprocessor:	65CO2
Program memory (ROM):	32 KByte
User Memory (RAM):	8 KByte
Program:	Mixed Shannon-A- and Shannon-B strategy
Playing levels:	8 playing levels 8 blitz levels 8 problem levels 1 correspondence level
Chess-clock:	four-time
Display:	4-character LCD
Possible information:	Mainline, position evaluation, analysis depth,
Move takeback:	number of moves Maximum 255 Plys



Displays and keys:

1. LCD-display, 7 segment
2. LED PLAY mode
3. LED POSITION mode
4. LED MEMORY mode
5. LED time default
6. LED colour/Black to move
7. LED colour/White to move
8. CL-key, return to PLAY mode
9. ENT-key
10. POS-key
MEM-key
INFO-key
LEV-key
11. Keys A1 to □0





Multifunction keys:

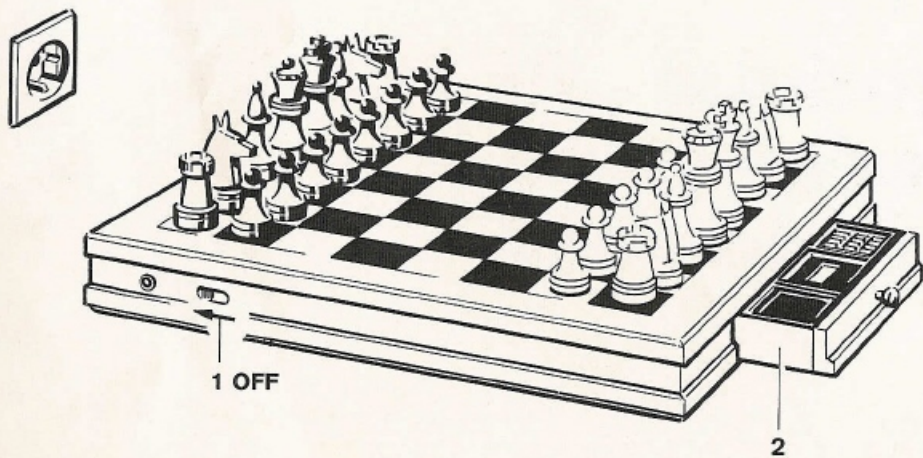
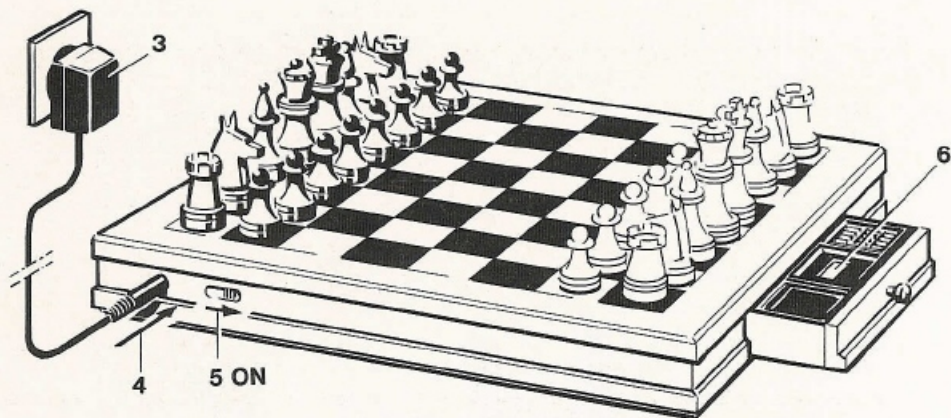
12. "□0" Page memory forwards,
colour choice: White
13. "■9" Page memory backwards,
colour choice: Black
14. Key H8 Special erase command
15. Key G7 Move suggestion/instructor
16. RESET-keys New game*

* after switching your computer on always press both RESET keys together.
MEPHISTO is now set to play a game at standard playing level 1.

MEPHISTO

LCD-Symbols:

-  = M
-  = T
-  = K
-  = G



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1. GENERAL INFORMATION

1.1. The Modular System

The MM IV chess program which is fitted to the MODULAR IV, EXCLUSIVE IV, and MÜNCHEN IV is one of the strongest playing programs you can buy. The MM IV can also be used to upgrade previous computers from the modular system (e. g. Modular II). Your chess-computer consists of a flat board with an integrated magnetic sensor board and two electronic circuits which, in the case of the two wooden boards (Exclusive and München), are hidden in a module drawer which can be pushed into the board. One of the modules fitted is a blank module (i. e. contains no electronics). You can use this slot to fit the opening module HG 440 later when it appears (available from March 1988).

The magnetic sensor board has an LED (small light) on each square.

MEPHISTO can use these LED's to show each move which is to be made. The notation of the move is also shown in the display. The flashing LED's show the move to be made from the original square to the destination square. The magnetic sensors (switches) under each square are activated when a chess piece (which has a special magnet built into it) is placed on it. Please use the HGN 5001 transformer (or HEGENER + GLASER AG international equivalent) to supply the necessary voltage to the computer. The jackplug for the adapter and the ON/OFF-switch are on the right side of the board for MODULAR, and on the left side of the board for the EXCLUSIVE and MÜNCHEN. The LCD-display shows different words or signs when the unit is in use (e. g. **PLAY** WHEN IN THE PLAY mode). The six LED's which are above the keys from the processor module (MM IV module) show the mode in which the computer is operating. For example: the far right-hand LED (with the white square next to it) should be switched on when it is White to move.

1.2. Setting up for use

Connecting the unit.

- Plug the HGN 5001 adapter into the mains.
- Plug the jackplug from the adapter into the MEPHISTO chess-computer (which must be switched off).
- Pull out the module drawer (EXCLUSIVE and MÜNCHEN only).
- Set up the pieces in the starting position.
- **Switch on your MEPHISTO** – the display should show **PLAY**. **Note:** The MÜNCHEN board also has a green LED on square A1 which also serves to show that the unit is switched on. An additional check that the computer is in the PLAY mode and ready to start is the LED for White which should be switched on.
- **Program-reset:** By pressing both the RES-keys simultaneously the computer is set for a new game and the memory erased.

Chessmen which have not been set up properly are indicated by the LED's on the respective square which blink. Please place the piece in the middle of the square properly. MEPHISTO is now ready to play (it is set to the standard playing level **LE 1**). The computer will take an average five seconds to give you an answering move.

You can now start to play with your new electronic chess-partner. Your MEPHISTO MM IV has been built in such a way that apart from switching the unit on and setting up the pieces there is nothing else to do except to make the moves. There are three important things which you should remember when playing:

1. Lift the pieces when making moves. Do not push them from one square to the next.
2. When castling move the King **first**.
3. When capturing a piece, remove the captured piece first and **then** replace with the capturing piece.

The following section gives you the first important information which you need to play a game. The following chapters contain the further possibilities which your chess-computer offers you.

1.3. Making moves – playing a game

Your MEPHISTO will play its first moves from the opening book stored in its memory. Regardless of the playing level set your MEPHISTO will reply immediately as long as the moves played are according to chess theory. Your chess-computer is programmed to recognize move transpositions and may leave a stored line to calculate one or several plys only to return then to the stored line, from which it will continue to play.

MEPHISTO announces that it has decided to play the move with a double beep. The move is then shown on the board by the blinking LEDs.

The start of the game. Lift the first white piece that you wish to move (e. g. E2) and you will see that the LED on this square will begin to blink until you place the piece on its new destination (e. g. E3). You have just made your first move (= ply). The **stand-by phase** of the computer is now ended. MEPHISTO now switches to its **analysis state** and while it is calculating an answering move, shows the time being used for the move in minutes and seconds in the display. The display flashes once every second. As soon as the computer has found an answering move it will sound a double beep and light the LEDs on the board to show you the move to be made. An additional check of the move which is shown on the board is also shown in the display (e. g. d7d5). It is just as important here as before that you lift the piece being moved and place it on the objective square. Do not push the piece across the board.

After you have made the move for MEPHISTO, the computer switches back to the **stand-by mode** and it is your turn to play. If you do not know who's move it is you can check the colour LEDs (■–□) to see.

If you try to make an illegal move the display will show Err1 and the LEDs on the board will flash. Take back the move and continue by playing a legal move.

Stand-by phase Display shows **PLAY** or previous computer (Player to move) move (and is steady). One of the colour LEDs is switched on (also PLAY-LED).

Analysis phase The time in the display flashes once a second and a colour LED (i. e. one in the module for Black or White) is switched on.

Capturing moves: When capturing a piece, first remove the captured piece from the board before replacing it with the capturing piece.

Castling: It is vital that the King's move is made first followed by the Rook's move. After you have moved the King, two LEDs on the squares will show the necessary move for the Rook. MEPHISTO will only continue after you have completed the castling move.

Notes concerning the information displayed: If, whilst the move is shown on the display, three dots appear between the letters and numbers (e. g. b.7.b.8.) you are being asked by the computer to call up additional information. In this case press the "INFO" and then "A1" keys. This gives you the first piece of information. Continue by pressing the "□0"-key to call up following comments. When you have reached the end of the information offered, four lines appear in the display. The game can then be continued by either making a move or by pressing the "CL"-key to return to the PLAY mode.

Possible comments – see chapter 3.

En-passant capturing moves: First make the Pawn's move. MEPHISTO will then tell you (by flashing the respective LED) to remove the captured Pawn from the board. MEPHISTO will show its own en-passant capturing moves by flashing the respective board LEDs and will tell you to call up further information. Press the following keys: "INFO" + "A1" + "□0", display EP.

Pawn Promotion: If you manage to march a Pawn through to the opposite side of the board then the last two squares involved in the move will flash; the display will also show Pr _. Choose a piece into which you wish to promote the Pawn and press the respective key (from Knight/B2 to Queen/E5). Should you change your mind after having pressed this key, press the "CL"-key and choose another chessman. Having done this you can remove the Pawn and replace it by the chessman on the board. Complete the promotion by pressing the "ENT"-key. The flashing LEDs will then be switched off and MEPHISTO switches back to its analysis mode to calculate the next move. It will remember that the new piece is on the board (as you can see for yourself by checking the position on the board – see 4.6).

Player to promote Pr _ Press one of the chessmen keys from "B2" to "E5", then ENT to confirm.

MEPHISTO switches back to the analysis mode.

When MEPHISTO manages to bring a Pawn to the opposite side of the board, it shows the previously mentioned three dots between the letters and the numbers in the display (e. g. b.2.b.1.). To find out which piece MEPHISTO has decided to promote the Pawn you must press the "INFO" + "A1" + "□0" keys. Having done this the display will then show the new piece to be placed on the board – e. g. Pr-d for a Queen.

Simply remove the Pawn on the board. The LEDs on the board will flash until you place the new chessman on the board. The computer then switches to the **stand-by mode** and it is your turn to play.

MEPHISTO b.2.b.1. to move Press "INFO" + "A1" + "□0". If the piece being promoted simultaneously checks your king, then this will be shown by "SCH" before the computer tells you the new identity of the piece.

Pr d Remove the Pawn from the board and place the new piece on the board – start of **stand-by phase**.

Symbols for chessmen:

d = Queen ♖ = Castle ♗ = Bishop ♘ = Knight

Taking moves back: During the **stand-by phase** you can take back as many moves as you like by replaying the moves which have just been made. Exception: When a pawn has been promoted. In this case you can still take back the move with "MEM" and "■9" (not by simply replaying). Don't forget to replace captured pieces. MEPHISTO will help you find out which pieces were captured by blinking above the corresponding chessman key ("A1" to "F6").

Selecting opening: Whilst MEPHISTO is playing moves from its opening book it is possible using the "□0"-key to select a different opening in the opening book memory. If after you press the "□0"-key the same move is displayed again then MEPHISTO has no alternative move for this line in memory. You must then make the last move shown.

2. BASIC SETTINGS, NOTES FOR USE

2.1. The Dialogue System

When you play chess you want to concentrate completely on the game. MEPHISTO's dialogue system allows you to do this. The different features of the program are still available in five groups or modes which you can select.

One of the computer's modes is already known to you: the PLAY mode.

The following table shows which modes are available, what they mean and by which keys they can be activated. You can see if the (PLAY, POS, MEM) modes are presently activated by looking at the mode LEDs on the keyboard module.

The modes which are marked with an asterisk can be activated during the stand-by phase. You can leave every mode and return to the PLAY mode by pressing "CL".

Interrupting the analysis phase: It is not possible to obtain access to the LEVEL, POSITION or MEMORY modes whilst MEPHISTO is in its **analysis phase**. You can however end the **analysis phase** at any time by pressing the "ENT"-key. If you do this then the best move calculated until this point in time is shown on the board and in the display (i. e. is played). Make the move and MEPHISTO will then switch to the **standby phase (PLAY mode)**. You can then obtain the access to the different modes.

Exception: The INFORMATION mode can – in comparison to the other modes – be called up during the game at any time even when MEPHISTO is in its analysis phase. The display however then flashes once a second.

2.2. Meaning of Playing Strength

You will probably have noticed that the chess-computer plays quite strongly even though automatically set to the simplest playing level (playing level 1). At this playing level the computer has an average analysis time (i. e. response time) of only approx. 3 to 5 seconds.

If you give MEPHISTO more time for its analysis it will find better moves and will play even more strongly.

The playing strength is therefore dependant on the playing level set. You can change the playing level during a game. To do this the computer must be in the PLAY mode, i. e. in the stand-by phase.

2.3 Setting the Playing Level

After pressing both the "RES"-keys the computer is automatically set to playing level 1. If you wish to choose another playing level you must first activate the LEVEL mode by pressing the "LEV"-key. The display changes from **PLAY** to **LE 1**. By pressing one of the keys from "A1" to "□0" you can select the playing level. After e. g. pressing the "F6"-key the display will show **LE 6**. Press "ENT" to confirm and "CL" to return to the PLAY mode.

Mode	Key	LED	Meaning
PLAY mode	"CL"	PLAY	Standby phase – player to move (steady display).
LEVEL mode	"LEV"		Selection of playing level and special functions, access to problem chess levels (mate-in-x moves).
POSITION mode	"POS"	POS	Entering, checking or changing a position.
MEMORY mode	"MEM"	MEM	Taking moves back, replaying a game, storing move sequences, referee function and storing a game during the game itself.
INFORMATION mode	"INFO"	INFO	Access to the analysis phase, display of time and move hints, comments and tips, information generally.

Key	Display	Meaning
1 x "LEV"	<u>LE 1</u>	LEVEL mode 1, automatically set to playing level 1
e.g. 1 x "F6"	<u>LE 6</u>	Set tournament Level 40 moves/ 2 hours. Confirm and return to
1 x "ENT"	<u>PLAY</u>	Stand-by phase

The following table shows you the playing strength and average response times for the different playing levels.

Level	Meaning	Average response time
<u>LE 0</u>	Beginner level	2 seconds
<u>LE 1</u>	Playing level 1	5 seconds
<u>LE 2</u>	Playing level 2	10 seconds
<u>LE 3</u>	Playing level 3	20 seconds
<u>LE 4</u>	Playing level 4	1 minute
<u>LE 5</u>	Playing level 5	2 minutes
<u>LE 6</u>	Tournament level	40 moves in 2 hours
<u>LE 7</u>	Analysis level 1	6 minutes
<u>LE 8</u>	Analysis level 2	12 minutes
<u>LE 9</u>	Correspondence chess level	unlimited, interrupt by pressing "ENT"

Please note that the average response times stated can be extended considerably in certain difficult positions.

3.2.1 Tournament level/LE 6 – with time checking

When set to the tournament level MEPHISTO obviously keeps to the time regulations namely 40 moves in 2 hours. Should, during such a

game, the player not keep to the 40 moves in 2 hours rule then MEPHISTO will sound a beep and display TIME in the LCD-display. The player forfeits the game due to his exceeding the time allowed. If, however, you still wish to continue the game, then either make the next move or press the "CL"-key so that the display TIME disappears.

Time warning: If during the game you are taking too long to make your move the time-LED will start to blink. This is merely to remind you not to exceed the average time for each move left.

2.4. Blitz chess

When this playing level is set, the chess-clock built into the computer uses a countdown display i. e. the thinking time is counted down to zero.

To set the blitz chess playing level press the "LEV"-key twice. The display then shows bl ? then you can select the desired blitz level by pressing one of the keys from "A1" to "H8" (the different time settings are explained overleaf).

Press the "ENT"-key and the display will then switch to show the selected playing time. The game is started by making the first move. When you make MEPHISTO's move the chess-clock is automatically halted.

As soon as your time to play has run down to zero MEPHISTO will sound a warning beep and show TIME in the display and will flash the time-LED. In addition the colour-LED is switched on to show the loser of the game.

The game can be continued, if you desire; however every time the player makes a move the display TIME and the time-LED will flash. To leave the Blitz chess level press both the "RES"-keys simultaneously and the computer will reset to standard playing level 1 and the start of a game.

BASIC SETTINGS, NOTES FOR USE

Analysis time:

Level	analysis time for the player	analysis time for the computer
<u>bl 1</u>	5 minutes	5 minutes
<u>bl 2</u>	10 minutes	5 minutes
<u>bl 3</u>	15 minutes	5 minutes
<u>bl 4</u>	10 minutes	10 minutes
<u>bl 5</u>	15 minutes	10 minutes
<u>bl 6</u>	15 minutes	15 minutes
<u>bl 7</u>	30 minutes	30 minutes
<u>bl 8</u>	60 minutes	60 minutes

i. e. the total time for a game set a bl 1, is 10 minutes.

Setting the level:

Key	Display	Meaning
2 x "LEV"	<u>bl ?</u>	Chess level selectable (e. g. 3)
"C3"	<u>bl 3</u>	Blitz level 3
"ENT"	<u>15:00</u>	Player 15 min/computer 5 min.

2.5. Automatic information

Whilst MEPHISTO is calculating its next move i. e. is in the analysis phase the display will only show the move time being taken in minutes and seconds.

Using the following table and key-in procedures, you can obtain information through the INFO mode:

	Information	Display (example)	Key-in procedure *
1	Present analysis time	<u>00:05</u>	"INFO" + "B2"
2	Move being considered by the computer	<u>F8b4</u>	"INFO"
3	Expected answering move	<u>F1b5</u>	"INFO" + "□ 0"
4	Analysis depth	<u>04.02</u>	"INFO" + "C3"
5	Position evaluation	<u>0.85</u>	"INFO" + "A1"
1	Present analysis time	<u>00:10</u>	"INFO" + "B2"
2	Move being considered by the computer	<u>etc.</u>	etc.

* To switch from one information mode back to the automatic mode press the "CL"-key.

If however you activate the feature "Automatic Information" then MEPHISTO will show the five pieces of information which are involved in its analysis automatically. The automatic information mode can be obtained or activated during the stand-by phase by pressing the "LEV"-key three times. Press the "ENT"- and "CL"-keys to activate it, as follows:

Key	Display	Meaning
3 x "LEV"	<u>AI--</u>	Automatic information (OFF)
"ENT"	<u>AI</u>	Automatic information (ON)
"CL"	<u>PLAY</u>	PLAY mode, stand-by phase

2.6. Automatic games

You can let MEPHISTO play against itself automatically. MEPHISTO will then calculate the move and begin with the calculation of the next move the minute you play the first move on the board. To set the "Automatic Game" function key-in as follows:

Key	Display	Meaning
4 x "LEV"	<u>AU--</u>	Automatic Game OFF
"ENT"	<u>AU</u>	Automatic Game ON
"CL"	e. g. <u>d2d4</u>	Start of the Automatic Game

You can interrupt the automatic game by pressing the "ENT"-key once (before making the move). MEPHISTO then leaves the other chessmen for you to play with.

The function "Automatic Game" is then de-activated and the game can be continued at the set playing level.

2.7. The Chess Instructor

This function is designed for beginners when set. MEPHISTO will not use mistakes made by its opponent without mercy, it will rather first warn the beginner of his weak or bad move. To activate the chess-instructor function key-in the following procedure:

Key	Display	Meaning
5 x "LEV"	<u>LE--</u>	Chess-instructor (OFF)
"ENT"	<u>LE</u>	Chess-instructor (ON)
"CL"	<u>PLAY</u>	Return to play mode

If you make a bad move when the chess-instructor function is activated then (after a short analysis time) the following will happen:

The computer will first sound five beeps and show four "question marks" in the display to indicate that you have played a questionable move. MEPHISTO will interrupt its analysis and give you a chance to look at your move again. The computer will help you to analyse your move.

Key	Display	Meaning
"INFO"	Answering move	Shows the move which would "punish" you for your weak move.
"□0"	Move sequence (main-line)	As far as available from memory, the computer will show move combinations which it has calculated as a consequence of your bad move. Four lines in the display (----) indicated the end of the information.

The chess-instructor will only warn you of drastic mistakes (loss of material oversight of Checkmate etc.).

MEPHISTO can only warn you after having completed a minimum of one analysis phase. MEPHISTO will also show you which move it would make rather than the move you have made. Press "CL" to cancel your move and replay the bad move in reverse. Next press "ENT". To continue the game press "ENT" again. If however you decide to make the original move simply press "ENT". Another method for the computer to show a better move is if you press the G7 key:

Key	Display	Meaning
"G7"	Move hint	As far as MEPHISTO had enough analysis time it will show you a better move and cancel your move. (Replace piece which made bad move.)
"CL"		
"ENT"	Answering move	You insist on the move which MEPHISTO reacted to. MEPHISTO gives you its answering move.

In order to give MEPHISTO enough analysis time when commenting your moves you should set playing level 2 when using the chess-instructor function.

Note: It is not possible to combine the chess-instructor function with the "Automatic Game" function.

3. COMMENTS, GETTING INFORMATION FROM THE COMPUTER

3.1. Comments

Sometimes when the computer makes a move it will show three dots (e. g. A.7.A.8) between the letters and numbers on the display. MEPHISTO is telling you that you should use the "INFO"-keys to obtain information about this move. Next press the "INFO"- and "A1"-keys.

The display will then show you the position evaluation or, if only a few moves have been made, it will display THEO.

MEPHISTO is then still in its opening book (theory) and has not calculated the position evaluation. Next press the "□0"-key to obtain the comments or information which MEPHISTO wishes to give you.

In certain positions it can happen that MEPHISTO has more information for you. In this case keep pressing the "□0"-key until the comments are ended and four lines appear in the display.

You can now continue the game by simply making your next move. The following example shows all the possibilities which can occur. In most cases the display will show the four lines (end of comments) after you have pressed the "□0"-key for the second time.

An example:

Key	Display	Meaning
	<u>C.2.C.1</u>	MEPHISTO's INFO call
"INFO"	<u>C.2.C.1</u>	Start calling INFO
"A1"	<u>4.58</u>	Position evaluation
"□0"	<u>SCH</u>	Check
"□0"	<u>Pr-d</u>	Promotion of Pawn to Queen
"□0"	<u>----</u>	End of comments
"■9"	<u>Pr-d</u>	(INFO page backwards – not normally necessary)
"INFO"	<u>C.2.C.1</u>	MEPHISTO's computermove
"CL"	<u>PLAY</u>	Display of stand-by phase

Possible comments:

● Automatic comments

Time exceeded during tournament level LE 6 or during blitzchess game

Promotion, choose piece from "B2" bis "E5"


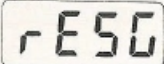
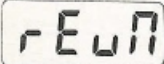
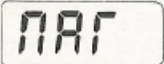
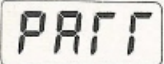
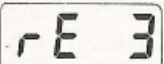

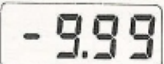
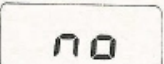
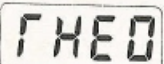
Player has won

● Comments which can be called up

Check

Pawn promotion e. g. Pawn to Queen

En-passant capturing move

	Announcing Mate – here, Mate in two moves
	MEPHISTO resigns
	Not enough material on the board
	Checkmate – player has lost
	Stalemate, game is undecided
	Draw to threefold repetition
	Draw to 50-moves-rule
	MEPHISTO resigns
	No Checkmate possible/no alternative solution found
	MEPHISTO is still in its opening book

3.2. Position evaluation

MEPHISTO can give you a position evaluation during a game. Press the "INFO"- + "A1"-keys to call up the value of this position (whether you are winning or losing the game).

At the beginning of a game when MEPHISTO is still playing from its opening book there is no position evaluation and only THEO is shown in the display. The evaluation is made in Pawn-units. A negative sign (-) means that MEPHISTO is losing the game. If for example you have pressed the "INFO"- + "A1"-keys and the

number -1.50 is shown in the display then MEPHISTO is losing the game by 1,5 Pawn-units. If -9.99 is shown as the evaluation you can consider the game won for yourself.

If 9.99 is shown, then you must accept that you have lost the game to MEPHISTO. You can call up the last play calculated by pressing the "INFO"-key. It is also possible to make your next move on the board without resetting the display.

Note: It is possible to enter the INFO mode at any time during the analysis phase.

Key	Display (example)	Meaning
"INFO" + "A1"	<u>THEO</u>	Computer's move from the opening book – no position evaluation made.
"INFO" + "A1"	<u>1.50</u>	MEPHISTO sees itself at a 1.5 pawn advantage
"INFO"	<u>d.6.b.4.</u>	Computer's move
"CL"	<u>PLAY</u>	Return to PLAY mode

3.3. Four-time chess-clock

● Analysis time of the present move

Only the analysis time (analysis phase) taken by MEPHISTO is automatically shown in the display in minutes and seconds. When it is your move and you wish to have your analysis time on the display you must first press the keys "INFO" then "B2" and then "□0". The full sequence is explained as follows:

● Obtaining the individual and total analysis time (thinking times)

The following table shows you the different possibilities for displaying analysis times:

Key	Display (example)	Meaning
	<u>d5b5</u>	Move made by the computer
"INFO"	<u>d5b5</u>	Start calling INFO
"B2"	<u>02:09</u>	Time for MEPHISTO's last move
"□0"	<u>00:05</u>	Present time for the player
"□0"	<u>SUM</u>	Total analysis and thinking time ...
"□0"	<u>00:08</u>	for the computer ...
"□0"	<u>00:14</u>	for the player ...
"■9"	<u>00:08</u>	Paging backwards (possible not necessary)
"CL"	<u>PLAY</u>	PLAY mode

The individual times are shown in the display in minutes and seconds. But total times are shown in hours and minutes.

The time displayed or called-up during the analysis phase flashes once a second. When the player makes his move or MEPHISTO announces its next move the INFO called-up is automatically erased from the display.

The chess-clock is stopped whilst you make MEPHISTO's next move. The same applies to taking moves back in the MEMORY mode.

Note: If you change the playing level during a game the clocks are all set back to zero.

3.4. Analysis depth and move counter

Using this information you can observe which move MEPHISTO is presently calculating and to what extent it has analysed the present position.

Start to call this information up by pressing the "INFO"-key. After this press the "C3" key and you will see that the display shows a number with a decimal point e. g. 06.28. The numbers to the left of the point show the number of plys (moves for Black or for White) calculated by MEPHISTO: in our example 6 plys in depth. To the right of the point MEPHISTO shows the number of the answering move which is presently being examined. In our example MEPHISTO is examining the 28th possible answering move.

If you now wish to find out which move this is press the "□0"-key and MEPHISTO will show you the move in the display.

Pressing the "□0"-key again shows the number of moves already played in the game. For example the display could show nr05 to indicate the 5th move in a game.

By pressing the "■9"-key you can again return to the analysis depth display.

The following table shows you an example:

Key	Display (example)	Meaning
"INFO"	<u>d7d6</u>	Probable computer move d7-d6
"C3"	<u>d7d6</u> <u>06.28</u>	Start INFO call-up Analysis depth 6 plys, 28th answering move
"□0"	<u>c6b5</u>	Being analysed
"□0"	<u>nr05</u>	5th move of the game
2 x "■9"	<u>07.09</u>	Analysis depth 7 plys, 9 answering moves analysed in the meantime
"□0"	<u>C5E7</u>	Move being calculated

3.5. Move suggestions and main-line

When you press the "INFO"- and the "□0"-keys you can page through the possible following moves in a game. This is called the main-line. The first move (ply) of the main-line can also be used by you as a move suggestion. Note: A "ply" is a move **either** for white, or for black. A complete "move" consists of two plys.

Key	Display (example)	Meaning
"INFO"	<u>d7d6</u>	Computer's move
"□0"	<u>d7d6</u>	Switch to INFO mode
"□0"	<u>E3C5</u>	Move suggestion for the player
"□0"	<u>d6C5</u>	Computer's answering mode
"□0"	<u>b1d2</u>	Player's move
"□0"	<u>C8G4</u>	Computer's move ... end of information
"■9"	<u>b1d2</u>	Page back a half move (ply)
"INFO"	<u>d7d6</u>	First move of main-line reset to MEPHISTO's move

If, when you try to call up the information, four lines are shown in the display then MEPHISTO is either still in the opening book (press key "A1" – display shows THEO) or the computer is still analysing a corresponding move in the main-line and will first show this when the calculations are completed.

4. CHECKING, CHANGING AND ENTERING A POSITION

4.1. Interrupting the computer's analysis

According to the flashing LED's for MEPHISTO's colour – Black or White – you can see whether MEPHISTO is presently in its analysis phase.

It is not possible to change the playing level, position or to check the position on the board whilst MEPHISTO is in this phase.

You can interrupt the analysis phase by pressing the "ENT"-key. When you do this the best move found until then will be played and the computer switches back to the stand-by mode.

4.2. Taking back moves

If you wish to take back one or several moves during a game first press the "MEM"-key.

MEMO then appears in the display. Using the "■9"-key you can then page back through any number of moves (even to the start of a game).

Using the "□0"-key you can page forwards again through the same moves. These moves are shown on the board LED's and in the display (with dots between the letters and numbers).

CHECKING, CHAGING AND ENTERING A POSITION

If one LED on the board should refuse to switch off then this means that a captured piece originally stood on this square. Replace the piece and continue taking the moves back. When you have reached a position from which you would like to continue the game a new press the "CL"-key and the computer will switch back to the standby mode (PLAY mode).

It is possible (within limits previously mentioned) to simply play moves backwards, however we recommend you use the method mentioned above.

4.3. Entering moves

Switch the MEMORY mode on by pressing the "MEM"-key. The display then shows MEMO and the LED above the "MEM"-key is switched on.

Regardless of the position on the board MEPHISTO is now ready to accept moves and move sequences which you enter on the board.

When you have reached a position from which you would like to continue the game after entering the sequence of moves (e. g. a particular opening line) press "CL" to return to the PLAY mode. If it is your move next simply play. Otherwise press the "ENT"-key and MEPHISTO will play its next move.

4.4. MEPHISTO as a referee

When the MEM mode is switched on you can use the computer and play on the board against a normal player. MEPHISTO will then act as a referee. The game will also be stored in the computer's memory. If for example your friend should want to give up the game when it is his turn the computer will gladly continue for him if you press the "CL"- + "ENT"-keys.

Note: MEPHISTO watches that the chess rules are kept to. If you or your partner should make an illegal move it will sound a beep and show Err1 in the display. Before you can continue you must take back the move. If you want to erase the "errors" in the display, press the "CL"-key.

4.4. Replaying a game

At the end of a game if you wish to replay it or write it down, then instead of pressing both the "RES"-keys press the "MEM"- + "ENT"-keys. The display will then show STA which means, you are at the beginning of the game in memory.

Using the "□0"-key you can page through the game from the beginning (move for move) and, if you press "CL", continue the game from this position.

Key	Display (example)	Meaning
'MEM' + 'ENT'	<u>STA</u>	Reset to beginning of game in memory
'□0'	<u>d2d4</u>	First move
'□0'	<u>G8F6</u>	Answering move
'□0'	<u>C2C4</u>	Second computer move
'□0'	<u>E7E6</u>	Second answering move
'CL'	<u>PLAY</u>	Switch to stand-by phase

4.6. Checking the position on the board

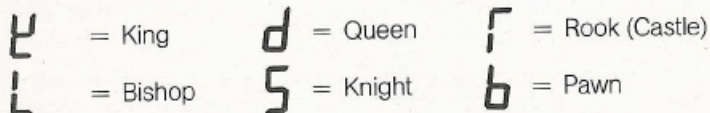
Activate the POSITION mode during the stand-by phase by pressing the "POS"-key. Press the "POS"-key again and again etc. to see the position of the various chessmen on the board.

The display shows the type of piece and its position. For example: white Knight(s) on square b1 (Sb1). Simultaneously the location of the piece is indicated on the board by the LED which flashes.

Any piece which is therefore not correctly located on the board can immediately be identified.

The display in your computer uses a seven-segment LCD. For this reason letter K and T are a little different to the normal letters.

Black chessmen are indicated by a minus-sign (-) before the symbol for the piece.


 = King d = Queen r = Rook (Castle)
 L = Bishop S = Knight b = Pawn

After checking the last chessman on the board the display will show POS again to show that the check has been completed. Press the "CL"-key to return to the PLAY mode and continue the game. If you have checked all the chessmen that you want and wish to leave the position check before the end of the routine simply press the "CL"-key twice. The display should then show PLAY.

Key	Display (example)	Meaning
"POS"	<u>POS</u>	POSITION mode
"POS"	<u>Ke1</u>	1. check, white King
"POS" etc. until "POS" is displayed	<u>POS</u>	Check all pieces
"CL"	<u>PLAY</u>	POSITION mode
		PLAY mode (stand-by phase)

4.7. Changing a position

● **Entering additional chessmen:** MEPHISTO offers you the opportunity to introduce one or several new pieces to the game. After pressing the "POS"-key press the "□0"- or "■9"-key to determine the colour of the piece to be introduced (white or black). After this key-in the type of piece to be introduced and the co-ordinates of the square where the piece is to be set.

Confirm your input by pressing the "ENT"-key and MEPHISTO will accept the new piece. Place the piece on the board and return to the PLAY mode by pressing "CL" again.

Don't forget when you introduce new pieces to keep to the rules of chess. MEPHISTO will naturally not allow you to have more than one King or eight Pawns per colour. Otherwise it will display Err4 and will only be ready to play again after you have altered the entry. You may also not introduce a piece which places the King in Check, with the checking side to play.

Key	Display (example)	Meaning
"POS"	<u>POS</u>	POSITION mode selected
"■9"	-___	Colour choice Black (key "□0" for White)
"C3"	-L__	Choice of a piece (e. g. Bishop)
"G7"	-LG	Desired square co-ordinates
+ "E5"	-LG5	
"ENT"	<u>POS</u>	Confirm input in memory, Bishop should be placed on respective square.
"CL"	<u>PLAY</u>	Return to normal play-mode

CHECKING, CHANGING AND ENTERING A POSITION

● **Removing the chessmen:** This is basically the same as entering a chessman except that instead of entering the symbol for a piece you have to enter an erase order (key "H8") – literally enter a "blank" piece.

For example (based on the previous paragraph) if you wish to remove the Bishop on G5 from the game again you must key-in the following sequence:

Key	Display (example)	Meaning
"POS"	<u>POS</u>	POSITION mode selected
"■9"	<u>--</u>	Colour choice black (key "□0" for white)
"H8"	<u>--</u>	Erase command (enter blank piece)
"G7" + "E5"	<u>--G</u> <u>--G5</u>	Co-ordinates of the piece to be removed
"ENT"	<u>POS</u>	Enter into memory, remove piece from the board
"CL"	<u>PLAY</u>	Return to PLAY mode

4.8. Entering a position

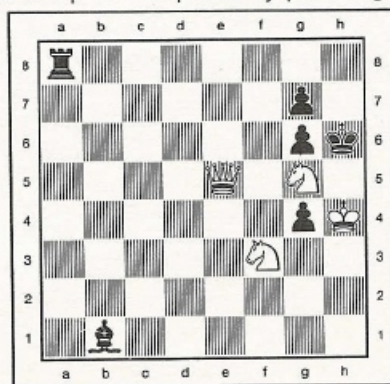
● **Clearing the "internal" board:** In order to enter chess positions it is necessary to first erase the position which is stored in the "internal" board in the computer. The following table shows you how to do this:

Key	Display	Meaning
"POS"	<u>POS</u>	POSITION mode
"ENT"	<u>CL ?</u>	Do you really want to erase the internal board! If not – press "CL"!
"ENT"	<u>K__</u>	Position of white King is asked for ...

The following example shows you how to enter a particular position (doing it is better than reading about it):

● **Entering the position:** First set up the pieces on the sensor board without having cancelled the internal board. When all the pieces are on the right squares first press the "POS"-key and then the "ENT"-key (the display should change to show CL ?). Press the "ENT"-key again and the computer will ask for the position of the white King K__. Lift the white King from the board and place it on the square again. The square where the piece was moved should blink in the time that the piece was not on the square. Also the display should show the squares co-ordinates. The display switches from the King to the Queen automatically (you can only have one King!). The computer then asks for the position of white's Queen (d__). If you have a Queen, lift it and replace it. If you have further Queens, lift and replace each in turn. When you have no more Queens to enter, press "ENT" to switch to the next piece. Continue with the other pieces in the same way. The following shows a position for which we should now enter for practise purposes.

Note: If you make a mistake when entering a piece you can switch back to the previous piece by pressing the "■9"-key.



Mate in 3 moves

Key	Display (example)	Meaning
"POS"	<u>POS</u>	POSITION mode
2 x "ENT"	<u>K__</u>	Lift white King from board and replace
	<u>d__</u>	Lift white Queen and replace
"ENT"	<u>T__</u>	White Rooks? – None (ENT = none)
"ENT"	<u>L__</u>	White Bishops? – None
"ENT"	<u>S__</u>	White Knight on F3 and G5 lift and replace
"ENT"	<u>b__</u>	White Pawns? – None
"ENT"	<u>-K__</u>	Lift and replace black King
	<u>-d__</u>	Black Queen? – None
"ENT"	<u>-T__</u>	Lift and replace black Rook ... and so on until
"ENT"	<u>-b__</u>	Enter black Pawns
"ENT"	<u>POS</u>	POSITIONS-?-mode, end of routine
"CL"	<u>PLAY</u>	PLAY mode

● **Choice of colour:** It is normally White's move after you have entered a position. You can however change the colour of the side who's turn it is to play in POSITION mode.

Who's turn it is is shown by one of the colour LED's which is switched on.

Changing the colour who's turn it is to play:

Changing from White to "Black to play":

"POS" + "■9" + "ENT" + "CL"

Changing from Black to "White to play":

"POS" + "□0" + "ENT" + "CL".

5. SPECIAL FEATURES

5.1. Problem chess (checkmate in-x moves)

This special function or feature is used to solve chess problems. The computer is then set to find the shortest solution to the chess problem. Checkmates in 1 to 5 moves are found relatively quickly whereas problems with 6 to 8 moves may take much longer. MEPHISTO should however solve these although this may take some time.

You can also use your chess-computer to search for alternative solutions to the problem.

Before switching on the problem-solving level you should set up the chess problem on board and enter the position as shown above. Activate the problem chess feature in the LEVEL mode as follows:

Key	Display	Meaning
6 x "LEV"	<u>Pr--</u>	Problem chess-feature (set off)
"ENT"	<u>Pr ?</u>	Problem chess-feature activated + computer asks for the number of moves in which Mate is to be found
"C3"	<u>Pr 3</u>	Set for Mate-in-3
"ENT"	<u>PLAY</u>	PLAY mode(stand-by phase)
"ENT"	<u>00:01</u>	Start of search for Mate solution

After you have pressed the "ENT"-key to start the search for the Checkmate solution the display will show the time. This is continually shown until a solution has been found. Obtaining information from the computer during this phase is not possible.

As soon as MEPHISTO has found the solution to the problem it will sound a double beep and displays the keymove. Make this move on the board.

It is now your job to make the next move for Black on the board. After you have done this MEPHISTO will calculate its next move which you must also make. Play your next move with Black etc. This is continued until Black has been checkmated.

Should however there be no solution to the Checkmate problem within the number of moves given, the display will show no after a specific time.

After this it is possible to examine the moves examined during the analysis of the computer if you use the "INFO"-key to examine the analysis depth (key "INFO" + "C3" + "□0").

● **Alternative solutions:** As soon as MEPHISTO HAS shown you the key-move to a problem you can immediately make it search for further solutions.

Do not make the key-move shown but press instead the "□0"-key. The chess-computer will begin immediately to analyse and will show, as far as one exists, the second alternative solution. If there is no alternative possible then the display will show (normally very quickly) no.

5.2. Turning the "internal" board

You may possibly wish to play against MEPHISTO with the black chessmen but wish to have these in front of you next to the key-board and the display. To turn the basic position of the chessmen stored in the computer (the internal chessboard) by 180 degrees, key-in the following procedure:

Key	Display	Meaning
7 x "LEV"	<u>bd--</u>	Turn board function (OFF)
"ENT"	<u>bd</u>	Internal board turned (ON)
"CL"	<u>PLAY</u>	PLAY mode

Don't forget the numbers 1 to 8 and letter A to H marked on the board itself are no longer valid when the internal board has been turned around. MEPHISTO takes this fact into consideration when showing information on the display and on the LED's on the board.

5.3. Random Generator – best move

Normally MEPHISTO will play its strongest move. This means that with the same position the computer will always play the same move. If you wish to explore other possibilities you can switch off the random (best move) generator. MEPHISTO will then play one of several moves which have the same playing value.

Key	Display	Meaning
8 x "LEV"	<u>bE</u>	Random generator (OFF)
"ENT"	<u>bE--</u>	Random generator (ON)
"CL"	<u>PLAY</u>	Return to play, PLAY mode

5.4. The Opening book (theory openings)

MEPHISTO contains a large opening book from which it will normally play the first moves of a game. You can de-activate this opening book so that MEPHISTO has to calculate each move individually as follows:

Key	Display	Meaning
9 x "LEV"	<u>TH</u>	Opening book (OFF)
"ENT"	<u>TH--</u>	Opening book (ON)
"CL"	<u>PLAY</u>	Return to play, PLAY mode

Don't forget that switching off the opening book is only purposeful at the beginning of the game.

5.5. Switching the sound off

Should MEPHISTO's sounds disturb you and you wish to play in complete silence you can switch off the sound generator as follows:

Key	Display	Meaning
10 x "LEV"	<u>TO</u>	Sound generator (ON)
"ENT"	<u>TO--</u>	Sound generator (OFF)
"CL"	<u>PLAY</u>	Return to play, PLAY mode

6. MISTAKES and HOW TO CORRECT THEM

6.1. Mistakes and their causes

At some point in time you will probably disagree with your MEPHISTO. This will probably happen when it is your move and the display shows Err (and a number) or the computer suddenly plays a piece which is no longer on the board. It is almost certain that the faults can be found with yourself and not with a technical fault on the computer's part. In such cases you should be tolerant with yourself: "to err is to be human" i. e. look for the mistake in yourself (in the way you have operated the machine) first.

What mistakes could you have made?

- 1.) Reading the display incorrectly (mistaking C for G and 5 for 6 etc.).
- 2.) Making computer's move during the analysis phase (coloured LED is still blinking).
- 3.) Entering a problem chess position without having first cleared the board with "POS" + 2 x "ENT". Otherwise entering an illegal position.
- 4.) Analysis on the chess-board during the analysis phase and incorrectly placing the pieces on their original squares.
- 5.) A piece is not properly on its square on the board. Sometimes a piece may cover a flashing LED. Look at the board carefully.

- 6.) You have made the move by pushing a piece slowly across the sensor board instead of lifting it first and placing it again.
- 7.) Whilst castling you have moved the Rook first and then the King. In this case the computer only has the Rook's move in memory. Move the King first.

Mistakes like these are not always apparent straight away. It may take some time before you and MEPHISTO have a disagreement. If you operate the computer properly and carefully you won't have any problems at all.

The best thing to do in such a situation is to first check the position on the board. To correct the situation either play the game backwards in MEMORY mode or set up the position anew. Playing the game backwards is the simplest solution. When you arrive at the position which is correct, continue with the moves again watching for your own mistake.

6.2. Incorrect inputs

Mistakes need not always be so drastic. At some time you may have only touched the wrong key and would like to correct this mistake. As long as we are concerned with altering a command (e. g. changing the playing level) which has not been confirmed by pressing "ENT", you can erase the undesired input by pressing "CL" and then continue with the correct key-in procedure.

If you have made a move which you would rather take back, you must first stop MEPHISTO thinking about a reply. Interrupt the analysis by pressing "ENT" and make the move which is shown on the board. Then switch to MEMORY mode and play the last two moves backwards i. e. the computer's move in reverse, then your move in reverse. Leaving the MEM mode by pressing "CL" you can then continue the game with a better or correct move.

7. CHANGING THE MODULE

In order to allow you to keep up with technical progress the electronics of your MEPHISTO MM IV are housed in user-exchangeable modules.

- Main module MM IV – computer and chess program
- Display module – LCD-display, four characters
- Blank module – Bay for other modules.
(e. g. HG 440 openings module)

The main module contains the real computer (the microprocessor) and the chess program, 6 checking LED's and a key-board with 18 multifunction keys.

The display module is the same as can be found in all the other modular computers. The four-character display keeps you completely informed during the entire game and allows you to check inputs when e. g. entering commands.

Changing the module

Before you exchange the modules of your MEPHISTO computer you must first switch this off in order to avoid an expensive repair.

- Switch the computer off by moving the switch at the back of the unit forwards and remove the adapter jackplug to be on the safe side!
- EXCLUSIVE/MÜNCHEN: Pull the modules drawer completely out of the computer's board. The modules themselves are fitted in the bays and secured by a snap-fit catch (see diagram opposite).

To remove the modules bend the top right-hand part of the drawer as shown in diagram 2 lightly outwards and tip the draw frame upwards.

You may now rearrange the modules as you wish or exchange the blank module for the extension module HG 440. The modules should fit solidly into place when being built in. If the module is not correctly in place the drawer will not close.

Other programs and modules from the modular series up to the program set Roma 68000/16 bit can be built into your modular computer.

Note: The Roma-program needs an HGN 5004A (or international HGN xxxx equivalent) adapter. This is supplied in the program set.

The MODULAR has a battery compartment at the rear of the case for batteries or accumulators. The computer will reload the accumulators when run on mains power.

Important: If you use normal batteries in your MODULAR instead of accumulators then please remove the power transformer from the mains after switching the computer off. Otherwise the batteries will be destroyed.

Disassembling the MODULAR: Remove all three modules from the front of the computer. Placing your fingers into the bay under the edge of the silver sensor board you can tip the board upwards. When the board is at an angle of about 45 degrees you can remove it from the lower part of the case. You will then see the battery compartment in the bottom (black part) of the computer. To assemble the MODULAR reverse the procedure:

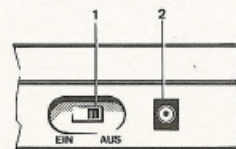
- Fit the hinges on the silver sensor board into the back of the lower part of the computer and snap-fit the two halves together.

Having fitted the modules firmly into the base the computer is ready for use again.

Note: Do not expose your chess-computer to excessive dust or direct sunlight. Mishandling of this nature may cause your warranty to become invalid.

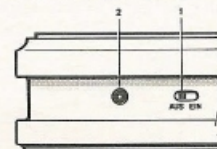
MODULAR

- 1 Slide-switch



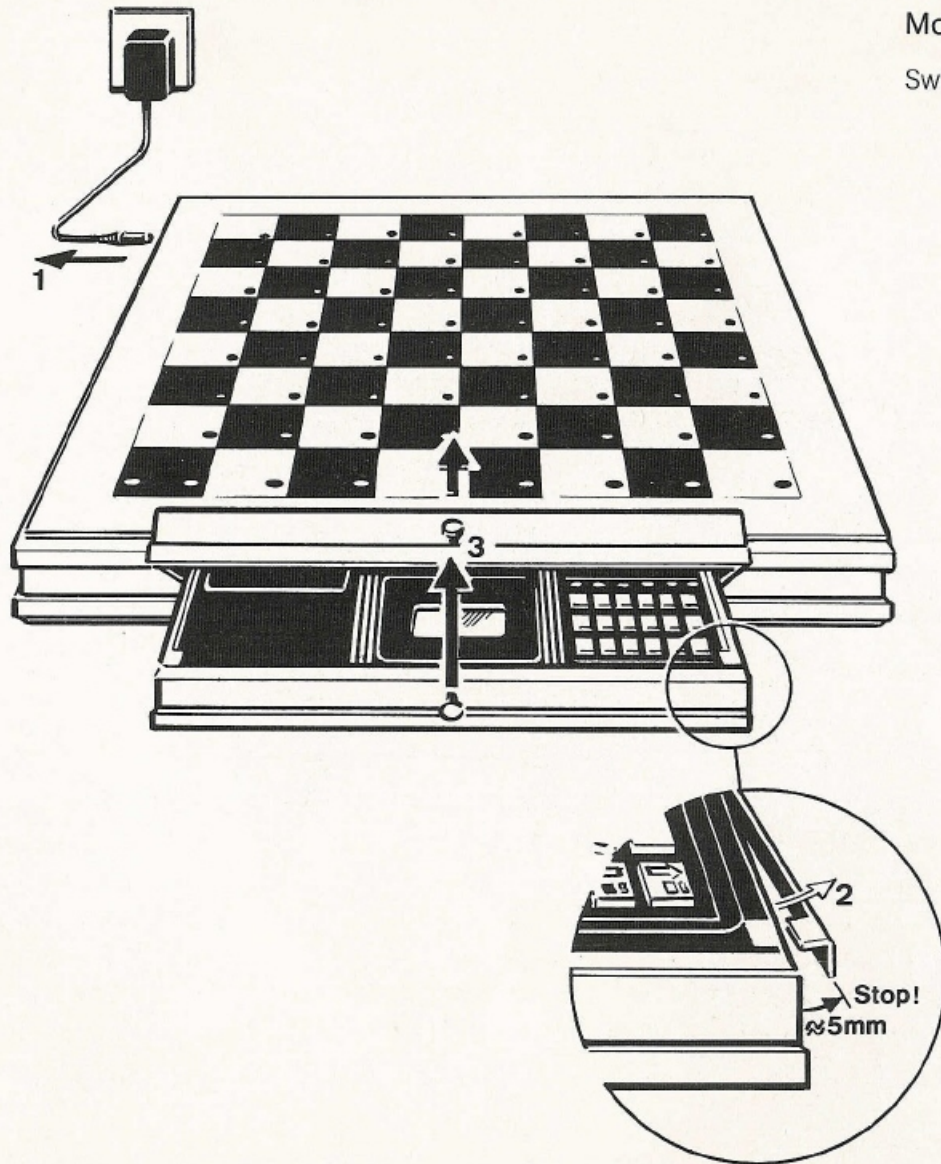
EXCLUSIVE / MÜNCHEN

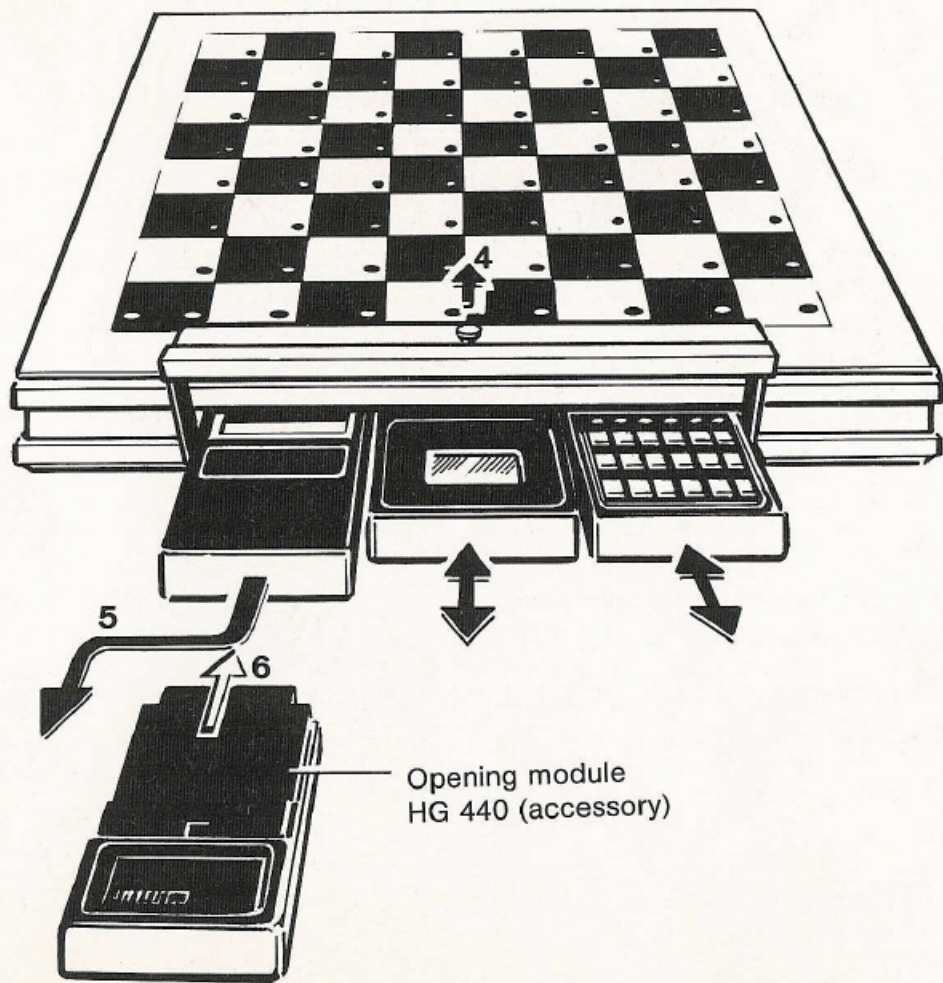
- 2 Power jackplug



Module exchange

Switch MEPHISTO off first!





Opening module
HG 440 (accessory)

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