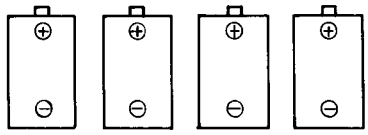
KASPAROV™

CHESS COMPUTER

RENAISSANCE™

OWNER'S MANUAL
BEDIENUNGSANLEITUNG
MODE D'EMPLOI
GEBRUIKSAANWIJZING
MANUAL DEL USARIO
MANUALE D'USO

Saitek™



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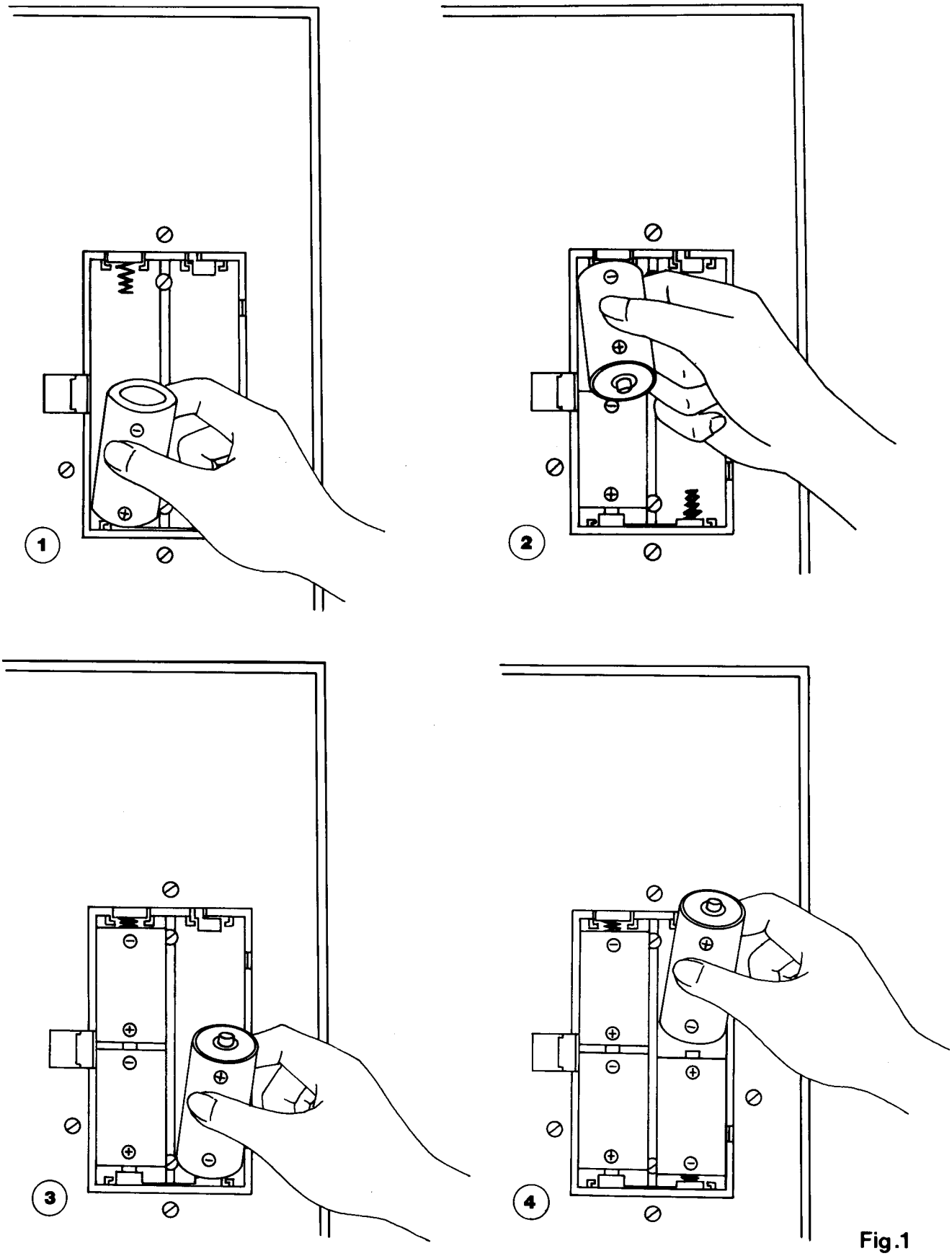

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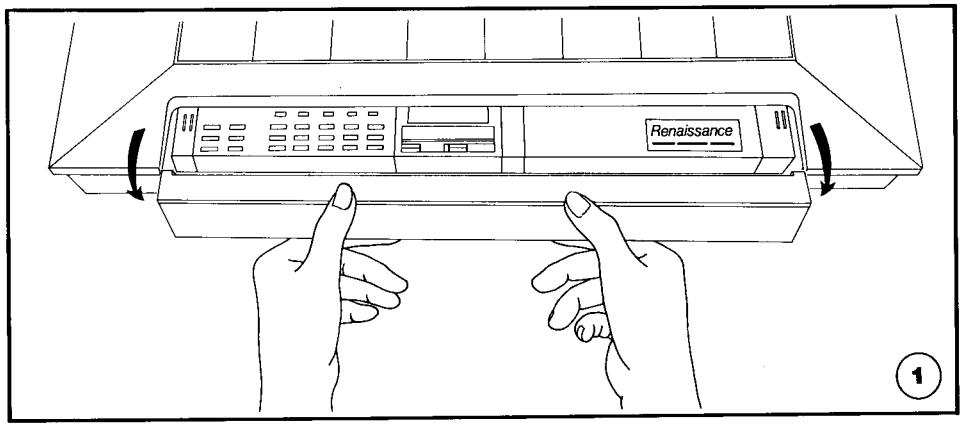
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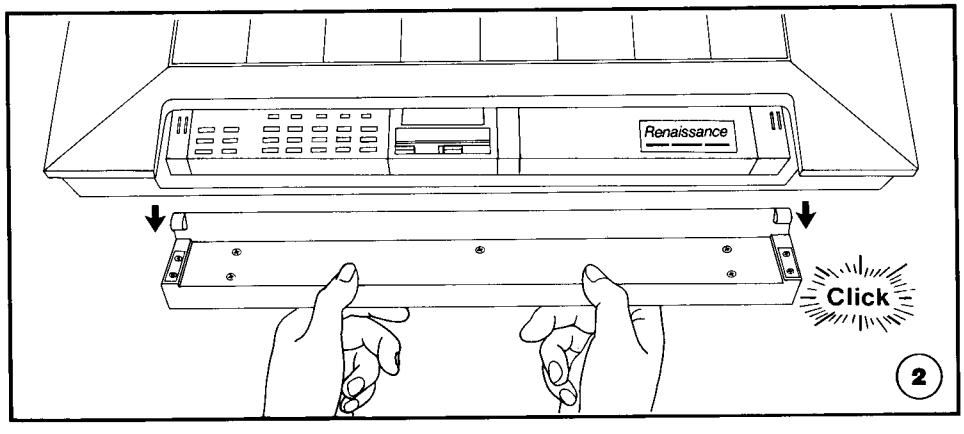
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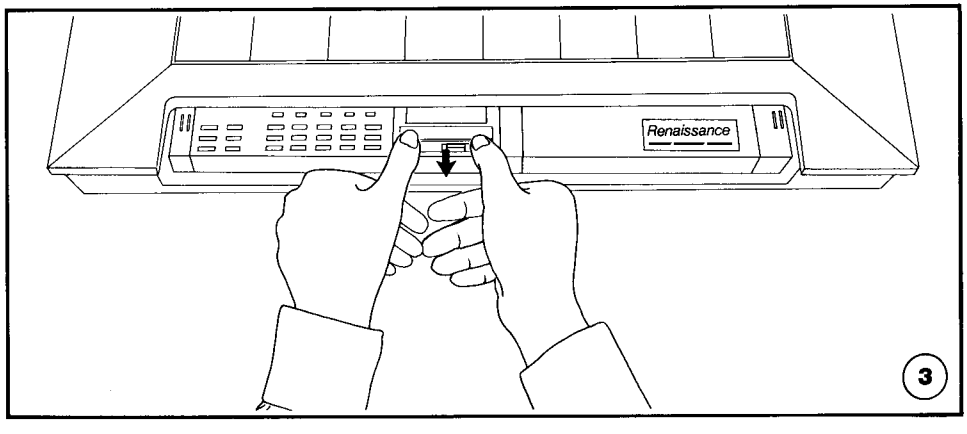
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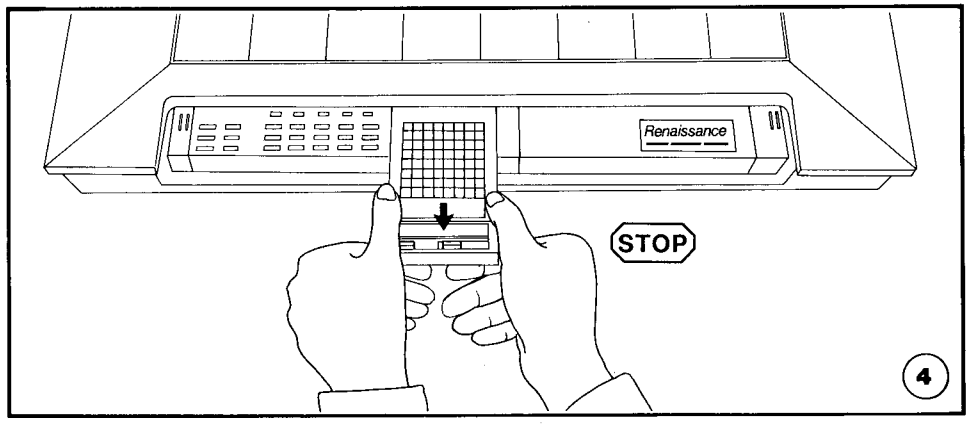
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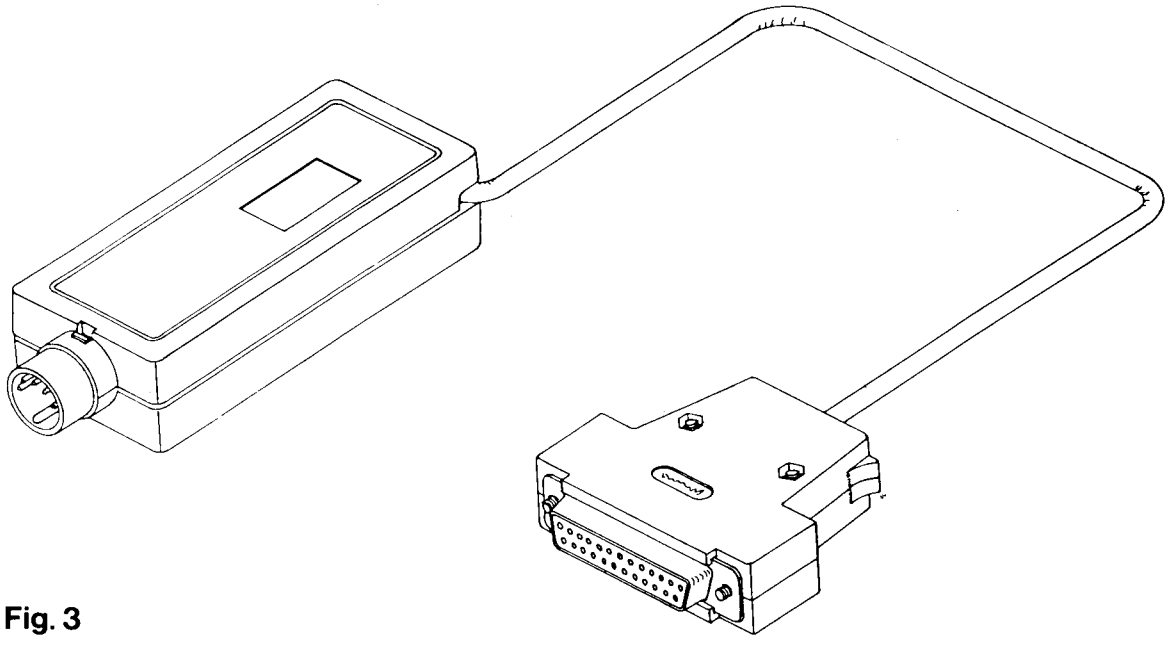
Fig.2



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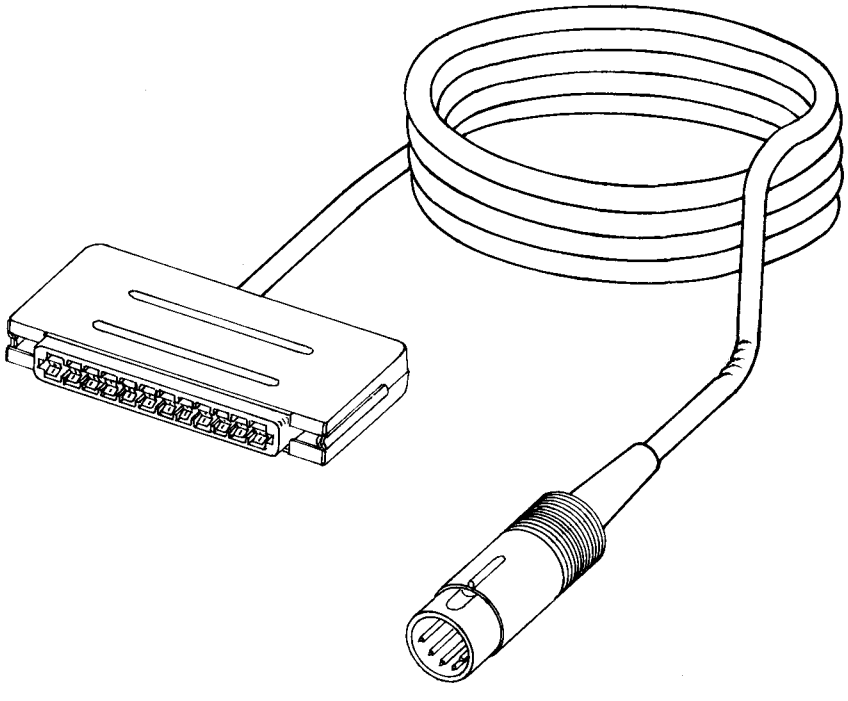

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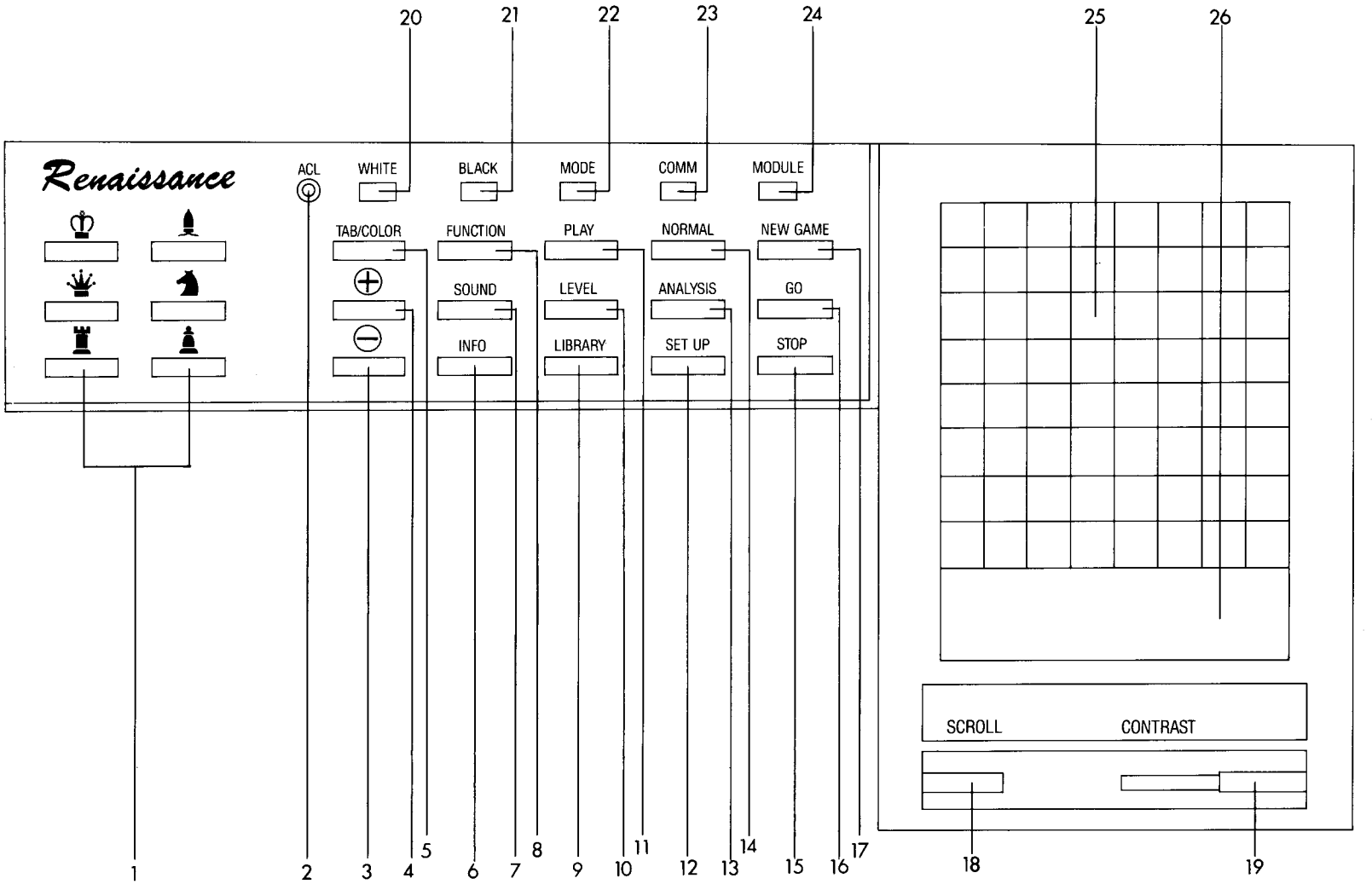
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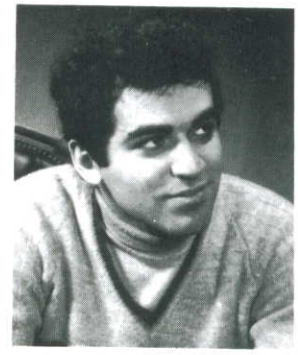

Dear Fellow Chess Player,

When computers were first invented just four decades ago, few people realized that mankind was witness to the most important single development of our time. Today computers have become freely available and in a few years there will be a computer in almost every household.

Saitek has asked me to write a few words to welcome you to the world of chess playing computers. I have been personally associated with this Swiss-led company since 1983 and can therefore speak about its products from experience.

Until recently chess computers were regarded as simple toys which would never be capable of providing serious opposition for the enthusiast. The rapid advance of technology and programming skills have certainly changed that. Today chess computers have become an accepted part of the chess scene, serving not only to introduce new players to the world's finest game, but also encouraging them to take part in tournaments against human opponents. Chess computers can teach you all the basics of the game and keep up with you even if you go on to become a top club player.

Saitek has been at the forefront of this development and has been responsible for many of the most interesting innovations. It is the largest chess computer manufacturer in the world, and I look forward to a long and productive relationship with Saitek and with you who have chosen their computers.

I wish you enjoyment and satisfaction from your Kasparov chess computer - and who knows, maybe we'll meet in combat across the chessboard in the future!

Good luck!

Garry Kasparov

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Keys, Lights and Features

KEYS

1. **Piece keys** — Used to choose promoted pieces, verify board position and set up new positions.
2. **ACL** — All clear. Press to reset the computer.
3. ⊖ — Used to decrease level setting, Info display, library slots. Also used with **ANALYSIS** to play backwards, and with **FUNCTION** to delete games in the library.
4. ⊕ — Used to increase level setting, Info display, library slots. Also used with **ANALYSIS** to play forwards, and with **FUNCTION** to store games in the library.
5. **TAB/COLOR** — Used to change color (during position verification or entry) or change column (in Level or Library mode). Also used to reverse the board at the start of a game.
6. **INFO** — Press to see the main variation and evaluation.
7. **SOUND** — Press to turn sound off or on.
8. **FUNCTION** — "2nd Function" key. Pressing this key alters the meaning of the next keypress.
9. **LIBRARY** — Enter Library mode (to store or retrieve a game).
10. **LEVEL** — Enter Level mode (to select level of skill).
11. **PLAY** — Execute next move. Pressing this key when it is your turn causes the computer to play the next move for you; pressing it when the computer is thinking interrupts the thought process.
12. **SET UP** — Enter Set-up mode (to change or enter positions).
13. **ANALYSIS** — Enter Analysis mode (to take back, replay or enter moves).
14. **NORMAL** — Return from special mode (Analysis, Set-up, Level, Library) to normal play.
15. **STOP** — Press to turn off the computer. The current position is stored in memory.
16. **GO** — Press to switch on the computer. Play is resumed at the point where the **STOP** key was pressed.
17. **NEW GAME** — Press to reset the initial position for a new game and return to Normal mode.
18. **SCROLL** — Press to choose next Info window in the LCD display.
19. **CONTRAST** — Slide to set the contrast of the LCD screen.

Chessboard sensors — Each square has a sensor that registers piece movement.

LIGHTS

20. **WHITE** — White side to move. When the computer is thinking the appropriate color light flashes.
21. **BLACK** — Black side to move. When the computer is thinking the appropriate color light flashes.
22. **MODE** — Indicates which mode the computer is in:
    green = normal play
    yellow = Analysis mode
    red = Set-up mode
    yellow flashing = level
    red flashing = Library mode
    green flashing = verify position.
23. **COMM** — Indicates that the **communication** link between Renaissance and a personal computer is open.

24. **MODULE** Indicates that a module is fitted and in use.

Board lights The computer uses the board lights surrounding each square to indicate game moves, take back, replay, show main variation and evaluation, verify the board position, set level of skill and display library slots.

Liquid Crystal (LCD) Screen

25. **LCD Chess-board** Used to follow games, verify position, graphically display thought process, and more. In order to see the entire LCD chessboard you must first open and then remove the front panel as shown in Fig.2. Pull out the LCD display to its maximum.

26. **LCD Info line** Shows moves, main variation, depth of search, evaluation, clocks, number of positions, time allocation; displays library information, check, mate, stalemate, other draws, and other moves.

FEATURES

Socket for mains adapter (underneath)
OSA Link (underneath)
Battery compartment (underneath)

The Chess Rules

Your Kasparov Renaissance knows all the rules of chess, including castling, en passant, underpromotion, stalemate, draw by insufficient material, threefold repetition or the 50 move rule. Sometimes it may appear to be playing irregularly when in fact it is obeying these rules. In case you are not very familiar with the game we have included a copy of the Rules of Chess. Additional information may be found in your local library, which is sure to have several books on the subject.

1. Introduction

Your **Kasparov Renaissance** is one of the most advanced chess computers in the world. It is made of high-grade wood and has a full tournament-size playing surface. Each square contains a magnetic sensor which can detect any piece on it. The computer moves are displayed with four red lights that surround each square. You can play chess against the machine almost exactly like you would do in a normal game. The unique "Blitz Board System" can detect high-speed action on the board and is ideal for Speed-Chess. The Renaissance also has a special LCD screen on which the game and a variety of chess information is displayed. You can use this to verify the current position and also to replay games, analyse problems and countless other things.

The basic unit has 32 levels of skill from which to choose, including special levels for different kinds of tournament chess, speed games, analysis and problem solving. With upgrade modules you can increase the playing strength considerably by adding new and more powerful levels to the machine.

The Renaissance allows you to take back any number of moves, replay entire games - on the physical board or on the LCD screen - or watch which moves the computer is considering. If you need help at any time during the game the computer will suggest a move for you.

The built-in "openings library" of the Renaissance contains an extensive selection of solid, popular lines that any master might very well play in modern international tournaments. It also knows many of Garry Kasparov's latest ideas, especially as Black, where the Grünfeld Defense, the Meran Defense, and the Scheveningen Variation of the Sicilian Defense are major weapons. The openings are aggressive and programmed with many variations, so it is difficult to catch the computer with traps and offbeat lines.

The Renaissance also has a number of other features that are unique in the chess computer world. Apart from the LCD chessboard mentioned above there is the "User-Programmable Library" in which you can store many dozens of games permanently in the computer's memory. You can also use it to program the computer with your favourite openings, adding these to the Renaissance's already comprehensive openings library. The remarkable "Terminal Position Analysis" allows you to set the computer to work, for hours or days, analysing a series of games or problems. The results are automatically stored in the library and can be reviewed on the LCD screen at your leisure.

And there is **OSA**, Renaissance's "Open System Architecture", which ensures that the computer will never be out of date. New powerful playing programs are constantly being made available (consult your dealer) and can be simply plugged into the computer in a few seconds. **OSA** also allows you to connect Renaissance to a standard printer or personal computer so that you can print out your games or store them on disk. Talented amateurs can even write their own chess programs and use **OSA** to run them on the Renaissance!

1.1 How to use this manual

In spite of all the advanced features, you will find the Renaissance extremely simple to use. However, before you start playing with the computer, please read at least chapter 2 of this manual. It will teach you the basics: how to make moves, correct errors, and generally understand all the things that might occur during a game. This is enough to give you countless hours of pleasure with the computer.

Chapter 3 deals with the levels of skill and how to change them, and chapter 4 with some very useful features built into the computer. Chapter 5 tells you all about the information you can get from the computer, and in chapter 6 you will learn how to verify and set up chess positions. Chapter 7 is devoted entirely to the user-programmable library and chapter 8 to "Terminal Position Analysis". Chapter 9 tells you how your Renaissance can be connected with a personal computer and gives some examples of its versatility. In chapter 10 you will find a number of important and useful technical details on the computer.

We hope that you will have many years of enjoyment with your Renaissance, which is a truly timeless chess machine. And we hope that it will contribute to your enjoyment of the magnificent game of chess.

1.2 Power supply

Your Renaissance runs on four AM2 (R14 or "C" size) batteries. Open the battery compartment and insert the batteries as shown in Fig.1. The computer will conduct a quick self-test of all electronic components, and the board LEDs will light up one row at a time. After this the computer is ready to play chess against you. It will run for approximately 150 hours on one set of alkaline batteries.

You can also use a Saitek mains adapter to run the computer off the household power supply. This is essential if you are using an upgrade module. The socket for the mains adapter is at the bottom of the set, behind the battery compartment.

If the computer fails to respond after you have inserted the batteries or connected it to the mains supply - static discharge can sometimes cause it to "hang up" - use a paper clip or a ball-point pen to press the **ACL** key on the keyboard to reset the computer (see section 10.4). It is advisable to hold this key depressed for a few seconds.

2. Getting started

Quick Start

1. Press **GO** to switch on the computer.
2. Set up pieces - white pieces closest to you.
3. Press **NEW GAME**.
4. Enter moves by simply executing them on the board.
5. Watch the board lights for the computer's moves.
6. Press **STOP** to switch the computer off.

2.1 How to move your pieces

Once you have powered up, you are ready for your first game of chess against your Renaissance chess computer. Set up the pieces in the opening position with the white pieces nearest to you. Press **NEW GAME**. Actually, this is usually unnecessary, since the computer senses the initial position and resets itself accordingly. You will soon learn to recognize the low-high-low-high signal for New Game.

Make your moves just as you would do on a normal chessboard. If the move is legal then you will hear a short beep and the BLACK light will begin to flash. This means that the computer has registered your move and has started to compute a reply for Black.

Note: At the beginning of a game the reply will usually be instantaneous on any level (except B6 and B8) because the Renaissance is not computing replies - it is playing moves that are stored in its "openings library".

2.2 How the computer moves

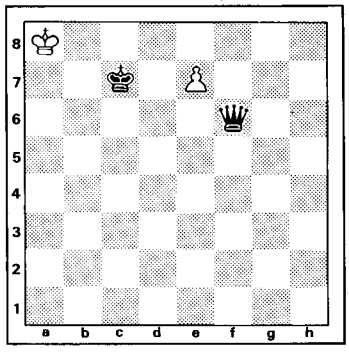
Whenever the computer wants to make a move, you will hear a high pitched double beep. The four lights around the piece it wishes to move, as well as those around the destination square flash (long-short-long-short). Move the piece to the square indicated. Note that the move is also shown on the LCD chessboard and in the display line below it.

2.3 Castling, captures and promotion

Castling: In chess when you castle you should always move the king first. This also applies when playing against the computer. The Renaissance will then remind you to move the rook. If you move your rook first that will count as a simple rook move and the computer will not permit you to move the king.

Captures: Capture moves present no special problems. Most magnetic sensor boards require you to first lift off the captured piece carefully and then put down the capturing one. However, the Renaissance's Blitz Board allows high speed captures. Try it!

Pawn promotions: When a pawn promotes it is automatically changed into a queen. If you wish to "underpromote", do so in the following manner: First lift up the pawn (which must be on the 7th rank) and remove it from the board. Now press a piece key (rook, bishop or knight) to tell the computer which piece you choose, and finally place the piece you have chosen on the promotion square.



Underpromotion

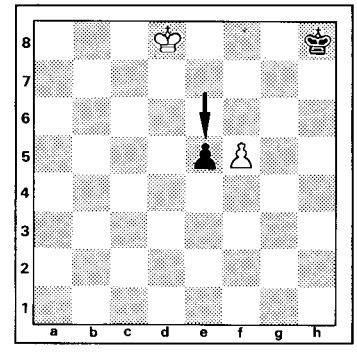
In the above position promoting the pawn to a queen would be fatal - Black could deliver immediate mate on a6! So White should promote the pawn to a knight, forking the black king and queen. This is how to do it:

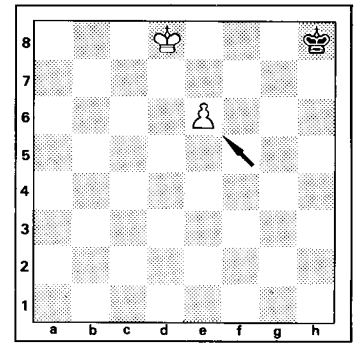
1. Lift up the pawn on e7
2. Press the knight key
3. Place a knight on e8

When the Renaissance promotes a pawn it will always tell you which piece it chooses on the LCD board and in the display below it.

2.4 Capturing "en passant"

Many beginners are not familiar with this rule, which was introduced into chess in the fifteenth century. Capturing "en passant" is only possible when you have a pawn on the fifth rank. If an enemy pawn crosses a square attacked by this pawn (because of its ability to move two squares on its first move) then you may act as if it had only moved one square and capture it **en passant**. This can only be done on the very next move.





In the above position Black tries to avoid the capture of his pawn by advancing it two squares from e7 to e5. White can capture the pawn **en passant** by moving his pawn from f5 to e6. The computer will always remind you to remove the captured pawn from the board.

2.5 Illegal moves

If you attempt to make an illegal move, i.e. one that is not in accordance with the rules of chess, the computer will not accept it. Instead it will keep flashing the square to which you have just moved the piece. Lift the piece up and the board lights will tell you from where the piece came. Replace it on the square indicated. Also watch the LCD screen. The computer will tell you to clear the square to which the piece was moved (e.g. "Clr g3") and put the piece on its original square (e.g. "Put (N) g1").

If you do not execute a computer move correctly, a low error beep sounds to indicate that you are trying to move the wrong piece or are moving it to the wrong square. Check the LCD board for the move that is flashing and move the piece correctly.

2.6 Check, Mate and Draw

When the computer puts your king into check, you will hear a double high beep to warn you. In the LCD display you will see the international check sign: "+".

If a game ends in checkmate you will hear a characteristic end-of-game signal (high-high-high-low - reminiscent of a tune by Beethoven, perhaps?). At the same time you will see the mate sign "#" in the display. And finally, the WHITE or BLACK lights will tell you which side has been checkmated.

The computer may **announce a forced mate** many moves before it actually occurs. You will hear the end-of-game signal and can read the mate announcement in the LCD display, e.g. "M in 4". The Renaissance may announce mate in up to 10 moves in a normal game, and up to 20 in problem mode.

If a game ends in a draw, then you will hear the end-of-game signal and a draw sign "=" appears in the display. The computer knows four kinds of draws:

- draw by stalemate - the side to move is not in check and has no legal move;
- draw by insufficient material;
- draw by threefold repetition - a position has occurred three times in the game;
- draw by the fifty-move-rule - there has been no capture or pawn advance during the last fifty moves.

2.7 New game

To start a new game simply press **NEW GAME**. You will hear the new game signal (low-high-low-high). You can interrupt a game at any stage by pressing **NEW GAME** - so be careful not to press it by mistake. (If you do, this can be rectified by using the Analysis mode and stepping through the game quickly - see section 4.5 for a full description).

You may also start a new game by simply placing the pieces in the starting position. The Renaissance senses the initial position and prepares itself for a new game.

2.8 Sound

If the computer's "beeps" are distracting you or others during a game, you may turn them off by pressing **SOUND**. Pressing the key again will turn it back on (you will hear a double beep to confirm this). You must watch the board lights and LCD display, and move pieces and press keys carefully when playing without sound.

2.9 Switching off

To turn the computer off just press the key marked **STOP**. This is a so-called "soft switch" which you may use at any time, even while the computer is thinking. If you press **GO**, the computer will come back to life and continue exactly where it left off. You should use **STOP** whenever you interrupt a game for more than a few minutes, as this stops the clocks. It also conserves battery power.

If you are using fresh batteries the computer will retain the current position (and game) for up to two years.

3. Levels of skill

Your Renaissance has a total of 32 different levels of skill (upgrade modules give you additional levels). They include levels for casual play, tournaments, Speed-Chess, analysis, problem solving and special handicap levels for beginners. Remember that, just like a human being, the computer becomes stronger when it has more time to think about its moves.

3.1 Setting a level

How to change levels
Press **LEVEL**. The board lights display the current level set. Change by pressing ⊕, ⊖ or **TAB/COLOR**. Press **NORMAL** to return to the game.

When you first switch on the computer, level A3 is automatically set. You may verify this by pressing **LEVEL**. The MODE light will flash yellow, indicating that you are in Level mode, and the board lights will indicate the square A3, which is the level currently set.

To change the level press the key marked ⊕. The board lights will now point to the square A4. If you keep pressing ⊕ repeatedly you will see that all squares from A1 to D8 are indicated. The ⊖ key reverses the direction.

There is one more key to help you change levels. Try pressing **TAB/COLOR** in level mode. This moves the level setting across between the columns (e.g. from A3 to B3). Using ⊕, ⊖ and **TAB/COLOR** you can reach any level very quickly.

When you are setting levels the computer will always display information on them in the line below the LCD chessboard (see section 3.9 for further details). You may change the level at the beginning or at any time during a game. Once you have reached the level you want, press **NORMAL** to return to normal play (the MODE light turns green). The new level setting remains unchanged even if you press **NEW GAME**.

3.2 Levels for casual play

The first eight levels are designed for casual play and the average response time on each level is as follows:

A1	1 second per move
A2	2 seconds per move
A3	5 seconds per move
A4	15 seconds per move
A5	30 seconds per move
A6	1 minute per move
A7	2 minutes per move
A8	3 minutes per move

The above times are averaged over a large number of moves. In the opening and in the endgame the computer will tend to play faster, but in tactically complicated middle game positions it may take considerably longer on individual moves.

3.3 Tournament levels

Levels B1 to B5 are for tournament play. In these levels the computer will play a certain number of moves in a given amount of time, attempting to meet the so-called "time controls" at certain points in the game. This is exactly what happens in human tournaments. At the time control the arbiter checks to see whether both players have completed the required number of moves. If one of them hasn't, he loses the game.

Level	Description	Primary time control, Secondary time control
B1	Club tournaments	30 minutes for the first 30 moves, then 30 minutes for 30 moves
B2	International standard	2 hours for the first 40 moves, then 1 hour for 20 moves
B3	Grandmaster tournaments	2.5 hours for the first 40 moves, then 1 hour for 16 moves
B4	Fast tournaments	1.5 hours for the first 45 moves, then 30 minutes for 15 moves
B5	U.S. Open	2.5 hours for the first 50 moves, then 1 hour for 20 moves

Take level B2 as an example: the computer will finish the first 40 moves in 2 hours (primary time control) and then play the following 20 moves within 1 hour (secondary time control). All further moves are played at a rate of 20 moves per hour.

In accordance with tournament regulations any time remaining at the primary time control is carried forward to the second phase of the game. If, for instance, the computer has made the first 40 moves on level B2 in just one hour, it has a total of two hours for its next 20 moves. The remaining time at each time control is accumulated until the end of the game.

If you need to interrupt a game for even a short period of time, just press **STOP**, and then **GO** when you are ready to proceed. The clocks are interrupted while the computer is off.

3.4 Special levels

The B-column has three more levels:

Level	Description
B6	10 seconds per move - a special form of Speed Chess in which both players must make each move in exactly 10 seconds.
B7	Analysis level - The computer will go on thinking until you interrupt it by pressing **PLAY**. You can use this level to have the computer analyse complicated positions for many hours or even days. The LCD display will keep you informed on its progress.
B8	Problem solving level (up to mate in 20)

On level B8 the computer searches for a forced mate and will only play a move when it actually finds one. If it does, then it will announce mate and play the key move. You can try to defend for the other side, but the computer will checkmate against any defence.

If the computer does not play a move on level B8, even when you press **PLAY**, then it means that the problem has no solution (check that you have entered the position correctly), or that it is too long. Theoretically the computer can find mates in up to 20 moves, but solving mates in six or more moves can take very long - hours, or even days.

In section 6.4 of this manual you will find an example for solving a chess problem with the computer.

3.5 Modern tournament levels

A tournament form that is rapidly gaining popularity is one which requires each player to make all his moves in a certain amount of time. This is independent of how many moves are played in the game. If one side runs out of time without checkmating his opponent then he loses the game (these tournaments are sometimes referred to as "sudden death"). The game may be terminated if it is a technical draw (e.g. if there is insufficient material for mate) or if both players agree to a draw.

On levels C1 to C8 the computer will try to complete all

the moves of the game in the time specified below. If it is a very long game you will notice that the computer will keep increasing its speed in an attempt to stay within the time allocation.

Level	Description
C1	5 minutes for the entire game (Blitz chess)
C2	10 minutes for the entire game
C3	15 minutes for the entire game
C4	20 minutes for the entire game
C5	30 minutes for the entire game
C6	60 minutes for the entire game
C7	90 minutes for the entire game
C8	120 minutes for the entire game

3.6 Handicap levels

If you are a beginner or an occasional player, you may find that the computer is too strong for you on any of the levels described above. It can be very discouraging to get beaten every single time, without ever having a chance to try out simple tactical plans. Children, especially, can lose interest in the game if there is no element of success.

To meet this problem your Renaissance has eight special handicap levels. On the levels D1 to D8 it executes its moves almost instantaneously, playing a quiet, unenterprising game, sometimes blundering in an amateur fashion. With its power thus tamed, even a beginner should be able to win occasionally. Level D1 is the easiest, and the playing strength of the computer increases gradually up to level D8.

3.7 Thinking in the opponent's time

You may have noticed that the computer will sometimes reply to your move instantaneously, even in the middle of a game played on one of the higher levels. This is because the computer was thinking in your time! In all but the novice levels, the computer will try to anticipate the move you are likely to make and to calculate its responses for this move while you are thinking. If it has guessed right there is no reason to go on calculating - so it plays the move it has found immediately.

3.8 Summary of levels

A1	1 sec/move	C1	5 min/game (Blitz chess)
A2	2 sec/move	C2	10 min/game
A3	5 sec/move	C3	15 min/game
A4	15 sec/move	C4	20 min/game
A5	30 sec/move	C5	30 min/game
A6	1 min/move	C6	60 min/game
A7	2 min/move	C7	90 min/game
A8	3 min/move	C8	120 min/game

- B1 30 min for the first 30 moves, then 30 min for 30 moves
- B2 2 hours for the first 40 moves, then 60 min for 20 moves
- B3 2.5 hours for the first 40 moves, then 60 min for 16 moves
- B4 1.5 hours for the first 45 moves, then 30 min for 15 moves
- B5 2.5 hours for the first 50 moves, then 60 min for 20 moves
- B6 10 seconds per move
- B7 Infinite (Analysis level)
- B8 Problem solving level (up to mate in 20)

Levels D1 to D8: Novice levels

3.9 Levels in the LCD display

When you are setting a level, details on the time controls are shown in the LCD display below the chessboard. This is extremely useful, since it means you will not have to consult this manual all the time. For example on level A4 you will see "0:15/1", which means that each side is expected to take 15 seconds per move. Here are some further examples:

A8:	"3:00/1	L "	= three minutes per move.
B1:	"0:30/30	L 0:30/30"	= 30 min for the first 30 moves, then 30 min for 30 moves.
B2:	"2:00/40	L 1:00/20"	= 2 hours for the first 40 moves, then 1 hour for 20 moves.
B7:	"9:59/1	L "	= Infinite time (9:59) for 1 move (i.e. analysis)
B8:	"Probl	L "	= Problem level (mate solver)
C1:	"	L 0:05/99"	= 5 minutes for all moves
C7:	"	L 1:30/99"	= 1 hr 30 min for all moves
D1:	" Handi	L 1 "	= Handicap level 1

Note that if you press the **SCROLL** key below the LCD display then the level itself is displayed, e.g. "Level b2". Press **SCROLL** again to return to the time settings.

4. More features

All the things we have seen so far are enough to give you countless hours of pleasure with your Renaissance. You can play straight games against it, correct mistakes and adjust the level of skill to match your needs. But there are many other things the computer can do that make it even more fun to use. This chapter deals with these features individually.

4.1 Changing sides

Would you like to play a game as Black for a change? Just set up the board with the black pieces at the bottom, closest to you. Remember that the black queen must be on a black square and the white queen on a white one. Now press **NEW GAME** and **PLAY**. The computer will make the first move for White, playing down from the top of the board. You may also notice that the colors have been reversed on the LCD board as well.

If you press **NEW GAME, TAB/COLOR**, then the board is reversed and you can play with the white pieces from the other side of the board.

Pressing **PLAY** always causes the computer to play the next move. You can change sides with the computer at any time during the game simply by pressing this key instead of making a move. Of course the board is not reversed - this is only possible at the beginning of the game. You can change sides as often as you like - even press **PLAY** after every move, forcing the computer to play the entire game against itself!

4.2 Interrupting the thought process

The **PLAY** key has another important use. If the computer is spending too long on a move, you can press it to interrupt the thought process. This is very useful on the higher levels, especially analysis level B7, where the computer "thinks forever". Pressing **PLAY** while the computer is thinking always causes it to stop and play the best move it has found so far.

There is one exception to this rule. On level B8 (problem solving), pressing **PLAY** will not cause the computer to play a move. It will only sound a double beep to inform you that it had not found a forced mate when it was interrupted.

So remember:

Press **PLAY** when it is your turn to move and the computer will play the next move for you

Press **PLAY** when the computer is thinking and it will stop thinking and make a move

4.3 Selfplay on the LCD board

There is a way to make the computer play against itself without having to press a key after every move. Press **FUNCTION, PLAY** to go into "Selfplay mode" (you will see "Self on" in the LCD display) and then press **PLAY** again to start the computer off. It will continue the game, making moves for both sides on the LCD chessboard. Although the moves are also shown on the large board, you do not have to move the pieces (but you can, if you like).

To interrupt the process press **FUNCTION, PLAY** again (display: "Self off"). You can take up the game if you want, but be sure to move the pieces to the right squares, which is not difficult using the LCD screen as a guide.

The Selfplay function is not just a gimmick, it is extremely useful if you want to analyse a position very deeply. Set a high level (e.g. 3 min. per move) and press **FUNCTION, PLAY**. Allow the computer to play the game out against itself - perhaps overnight. The next morning you can replay the game on the LCD board (see section 4.6) and study the results of the computer's labour at your leisure. Selfplay can also be combined with the "TPA" function to analyse a number of games or problems automatically, as described in section 8.4.

4.4 Taking back moves

Normally you cannot take back moves in a serious game of chess. However, your Renaissance is more generous and will always allow you to do so. This is very handy when you have committed an unnecessary blunder or are analysing a position.

The Renaissance has a very elegant take back function. Try the following experiment: Play about a dozen moves in a normal game. Then, after the computer has made a move, retract this move on the board. More precisely: lift up the piece that has just moved and then place it on the square from which it came. If you look at the LCD board you will see that the move has indeed been retracted. You will also see, on the main board and the LCD, that the computer is offering to retract the second-last move. It is showing you which piece was moved and where it came from.

You can take back as many moves as you like, even to the very beginning of the game. You will get a high-low beep when there are no more moves to take back. When you retract a capture move the computer will remind you to replace the captured piece by flashing the proper square. At the same time the LCD board and display line are telling you which piece must be replaced on that square. If you wish to resume normal play at any stage during move retraction, just ignore the board lights and enter a move (or press **PLAY** if you want the

computer to play). You can also press **NORMAL** to terminate takeback.

There is another way to retract moves. First press **ANALYSIS**. The MODE light turns yellow, indicating that you are in the special "Analysis mode" (which we will discuss in detail in the next sections). If you now press the key marked ⊖ the computer will help you to retract moves exactly as described above. Press **NORMAL** to leave analysis mode and return to normal play (the MODE light turns green).

4.5 Replaying the game

After you have taken back one or more moves you can play them forwards again. To do so, press **ANALYSIS** and then the key marked ⊕ . The computer will show you which moves were made and you can play through all the moves you retracted. A high-low beep will tell you when you have reached the last move of the game. To return to normal play (at any stage), press **NORMAL**.

You can use Analysis mode to replay an entire game. Set up the initial position and press **NEW GAME, ANALYSIS** and ⊕. The computer will play through the last game with you, move by move. If you want to stop at any stage (e.g. to try a better continuation), just press **NORMAL**. The MODE light turns green and you can play on from the current board position against the computer.

Takeback and Replay

To retract just take back the last move

or

Press **ANALYSIS,** ⊖

To replay moves press **ANALYSIS,** ⊕

To replay the entire game press **NEW GAME** and then **ANALYSIS,** ⊕

Press **NORMAL** to resume the game

4.6 Takeback and replay on the LCD screen

Now we come to something really useful. You can retract a number of moves or replay them without actually moving the physical pieces on the board. Just press **ANALYSIS,** ⊖ , ⊖ , ⊖ , ... or **ANALYSIS,** ⊕, ⊕ ,⊕ , ... and watch the moves executed on the LCD chessboard. In this way you can go back during a game to see what happened, or even replay all the moves from the beginning without disturbing the game. If you press **NORMAL** at any stage you are automatically returned to the current board position!

On the other hand you may want to go back to an earlier position and play on from there. Of course this is possible by retracting moves as described in section 4.4, i.e. actually moving the pieces backwards until the desired position is reached. You can also take back moves rapidly on the LCD board and then **transfer the position to the main board.** This is done by pressing **FUNCTION, NEW GAME** when you are in Analysis mode.

Say you want to go back some 15 moves. Press **ANALYSIS,** ⊖,⊖,⊖, ... until you reach the position and then press **FUNCTION, NEW GAME.** The position is transferred to the main board. The computer will start helping you to adjust the pieces so that you will be able to play on from there.

To review the game on the LCD board

Press **ANALYSIS,** ⊕,⊕,⊕, ... or **ANALYSIS,** ⊖,⊖,⊖, ...

Press **NORMAL** to return to original board position or **FUNCTION, NEW GAME** to transfer the LCD screen position to the main board

4.7 Marking positions

To enhance the functions described above, the Renaissance allows you to "mark" positions in a game and return to them later. This is useful if, for instance, you wish to take a closer look at a crucial point in the game. Press **ANALYSIS** (MODE light yellow) and then **FUNCTION, SET UP** to mark the position during the game. In the LCD display you will see "POS on". Press **NORMAL** and continue the game in the normal fashion. Of course you can also mark positions when replaying a game in Analysis mode - you only need to press **FUNCTION, SET UP** to mark it. And you can also "unmark" a marked position by pressing **FUNCTION, SET UP** again (display: "POS off").

When you wish to return to a marked position you can do so by pressing **FUNCTION,** ⊕ or **FUNCTION,** ⊖ in Analysis mode. In the first case the computer will jump to the **next** marked position, in the second case to the **previous** one (watch the LCD board). If no positions are marked then the computer will jump to the final or the initial position respectively.

Example:

Say you have marked some positions in a game.

Press **NEW GAME, ANALYSIS** to go into Analysis mode.

Press **FUNCTION,** ⊕ to jump to first marked position.

Press **FUNCTION,** ⊕ for second marked position.

Press **FUNCTION, NEW GAME** to make the LCD board position the current position. Adjust pieces on the main board.

Press **NORMAL** to return to normal play.

4.8 Entering moves

Analysis mode has some other important uses. It allows you to enter moves or force the Renaissance to play a certain continuation. Say you want to try an opening which the computer refuses to play of its own accord. Press **NEW GAME** and **ANALYSIS**, and then start entering moves for both sides. You will notice that the computer does not try to find countermoves but just keeps track of what is played on the board, making sure that all moves are legal. Once you have reached the position you want, press **NORMAL** and play on as usual against the computer.

You can use this feature to enter entire games (eg., the games from a World Championship Match) and store them in the computer's permanent library (see Chapter 7 of this manual). It is also useful when you are playing a game against a friend and want the computer to act as referee and adviser. Just switch to Analysis mode and play the game on the sensor board. The computer will monitor the game, making sure that nobody cheats. And if either side needs help, you can always press **PLAY** and allow the computer to suggest the next move, then **ANALYSIS** to resume as before.

4.9 Summary of functions in Analysis mode

Press **ANALYSIS**	Switches to Analysis mode (MODE light turns yellow)
	After that in Analysis mode:
Press ⊕ or ⊖	to play moves forwards to take back (retract) moves
Press ⊕, ⊕, ⊕, ... or ⊖, ⊖, ⊖, ...	to play forward or retract on LCD board
FUNCTION, SET UP	Mark or unmark position
FUNCTION, ⊕	Jump to next marked position (if none marked, to the final position)
FUNCTION, ⊖	Jump to previous marked position (if none marked then to the initial position)
FUNCTION, NEW GAME	Make the position from LCD board the current position
NORMAL	Return to normal play (MODE light green)

5. Information from the computer

What move is your opponent considering? What does he think of the current position? Hardly questions you can ask a human player during a game. But your Renaissance will not object and gives you a wealth of information on its "thought process". And it will do so graphically on the LCD screen showing you which move it is considering, what continuation it expects after that, its evaluation of the position and the depth of its search. This is not just of passing interest - it can help you to learn more about the game.

5.1 Board Info

Try pressing **INFO** while the computer is thinking. It will use the board lights to tell you which move it is currently considering. After that it will show you what it expects you to play on your next move, what it intends to play after that, etc. This is known as the "main variation", the best sequence of moves the computer has found for both sides.

After showing you all the moves it anticipates, the computer turns on two lights to the left of the board to indicate what it thinks of the position. This is what each value indicator means (square 1 is nearest the control panel, square 8 furthest away):

Square 8 - Winning for the human player (i.e. the side playing **up** the board)
Square 7 - Substantial material advantage for the player
Square 6 - Positional advantage for the player
Square 5 - Slight general advantage for the player
Square 4 - Slight general advantage for the computer
Square 3 - Positional advantage for the computer
Square 2 - Substantial material advantage for the computer
Square 1 - Winning for the computer (i.e. the side playing **down** the board)

5.2 Freezing the Info

If the information supplied by the computer is coming too fast, you can always "freeze" it by pressing ⊕. This will cause the computer to show you only the first move (the one it is considering). Press ⊕ again to see the next move. You can cycle through the information display manually at any speed you want. Pressing ⊖ naturally takes you back one step. Press **INFO** to return to the cycling display.

So pressing **INFO** ⊕ , displays only the first move of the main variation. In this state the computer will beep softly every time it changes its mind. And pressing **INFO** ⊖, gives you an instant position evaluation. You can watch the evaluation change as the search progresses.

As soon as the computer has made a move the Info display is switched off. However, when the computer starts thinking again, it is restarted in the state you left it, i.e. cycling, first move only, evaluation. Even pressing **NEW GAME** does not change this. To switch the Info display off you must press **NORMAL**.

5.3 Advice from the computer

Even after it has played a move the computer will remember the rest of the main variation and display it if you wish. Just press **INFO** when it is your turn to move. Since the first move the computer displays is the best it has found for your side, you may regard this move as a "hint" from the computer. So if at any time during a game you need advice, just press **INFO**.

Note: When the computer is playing out of its openings library and not actually computing moves, it will not be able to give you any hints. Press **PLAY** if you want the computer to make the next move for you.

5.4 Info in the LCD screen

Apart from the information the computer gives you via the board lights (as described in the sections above), it has even more to offer on its unique liquid crystal chessboard display. You can watch the entire main variation (the continuation the computer is considering) with the moves executed on the LCD chessboard. You can also view the built-in chess clocks for elapsed and remaining time, or the depth of search or the computer's evaluation of the position in 100ths of a pawn.

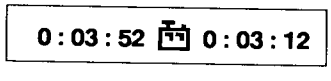
In order to see the entire LCD chessboard you must first open and then remove the front panel as shown in Fig.2. It is very easy to pull the panel off and put it back on again. Once it is off you can fully pull out the LCD display. The slider to the right allows you to adjust the contrast to suit the lighting in the room.

There are five different Info displays available in the LCD chessboard screen. You can "scroll" to each of them by pressing the **SCROLL** key below the board. Each keypress takes you to the next Info display, and after display 5 you return to display 1. Once chosen, the same Info display will remain active until you change it by pressing **SCROLL**. In fact it will stay the same even after you press **NEW GAME**.

In the following sections we will describe each of the displays in turn.

5.4.1 Info 1 - Elapsed time

You may have noticed that in normal games against the computer the line below the LCD chessboard shows the time that was used up by each side since the beginning of the game. For instance if you see



this means that White has used up 3 minutes and 52 seconds for all his moves so far, and Black 3 minutes and 12 seconds. The little picture of a chess clock with the left button raised means that White's clock is running (i.e. it's his turn to move).

Both clocks are set to "0:00:00" when you press **NEW GAME** and Black's clock is started as soon as White has entered his first move. If a game is interrupted with **STOP** then both clocks are frozen until the computer is restarted with **GO**.

5.4.2 Info 2 - Remaining time

If you press the **SCROLL** key during a game the "elapsed time" display will disappear and the Info line below the LCD chessboard will show the time remaining for each side. Of course this is irrelevant in some levels (e.g. casual play, analysis, problems), and in such cases there will be a "0:00:00" display.

The Info 2 display is particularly useful in levels C1 to C8, in which all moves must be made within a given time limit. Info 2 acts as a perfect "countdown clock".

5.4.3 Info 3 - Main variation

Pressing **SCROLL** a second time displays the "main variation", i.e. the best sequence of moves the computer has found for both sides. While it is thinking you can even watch the pieces move on the LCD chessboard! In the display line below the board you will see the depth ("Ply 1", "Ply 2"...) and the move in standard notation.

At the end of the main variation you will see the **depth of search**, i.e. how many moves ahead the computer has looked. The display "Fd 3" means that the computer has looked three ply deep. Note that this means it has looked at **every possible continuation** to this depth. At the same time it has also looked at certain important variations much deeper than the full-width display indicates.

Together with the depth the **evaluation** is displayed. This is given in 100ths of a pawn with positive numbers for White and negative for Black. Thus "2:03" means that the computer thinks White is the equivalent of two pawns ahead, "-0:50" that Black is ahead by half a pawn.

As in the main board Info you can "freeze" and "step through" the display by pressing ⊕ or ⊖ (see section 5.2). Pressing ⊕ will cause the computer to show you only the first move. Press ⊕ again to see the next move. You can cycle through the information at any speed you want. Pressing ⊖ naturally takes you back one step. Press **SCROLL** again to return to the full main variation display.

5.4.4 Info 4 - Depth, next move and evaluation

The fourth Info display shows you the depth of search, the first move of the main variation and the evaluation. You may find this quite useful when the computer is analysing a position for many hours. With Info 4 in the display, you can occasionally check how deep it has gone, whether it has found a new move, and what it thinks of the position.

5.4.5 Info 5 - Number of positions and time

This tells you how many positions the computer has generated and evaluated in the current search, and how much time it has spent in doing so. After the position count exceeds the number of digits available - this can happen pretty soon - the number is displayed in scientific notation, e.g. 1577 10^3, which means 1,577,000 or over one and a half million positions.

5.5 Advice on the LCD screen

When it is your turn to move the computer will not automatically display the next move - after all, you should be playing on your own. However, if you do want to "peek" just press **SCROLL** to get full information on what the computer expects. You may regard this as a "hint", since it is the best continuation the computer has found.

So if at any time during a game you are at a loss for what to play, you can press **INFO** (as described in Section 5.3), or you can set LCD Info 3 or 4 (as described above) and use **SCROLL** to get advice from the computer.

5.6 An experiment with Info

Press **NEW GAME** and **ANALYSIS**, and then enter the following moves: 1.e2-e4 e7-e5 2.Ng1-f3 d7-d6 3.Bf1-c4 h7-h6 4.Nb1-c3 Bc8-g4. Now set the computer to level A8 and press **PLAY** and then **SCROLL, SCROLL...** until Info 4 is displayed. You can watch how the computer keeps changing its mind until it finds the killer: 5.Nf3xe5! Notice how the evaluation changes. Experiment with the position to find out why the white Queen may not be captured after 5.Nf3xe5. If you play 5...Bg4xd1 for Black the computer will immediately show you why it was advocating another move in its main variation.

5.7 Information while solving problems

On the problem-solving level B8 the computer is looking only for a forced mate. Pressing **INFO** while it is thinking will not produce the normal "best move" display. Instead, the computer will use the board lights to indicate the current depth of search. Each square from A1 to A8 represents one ply (half-move), B1 to B8 the next eight ply, etc. You should also watch the LCD screen for more information. Set Info 1, 3 or 5 for the solution time, depth or position count. Here, too, you will not get a "best continuation" display.

When the computer finds the mate it will announce it in the normal way (move + "**M** in n"). If you now press **INFO** and/or **SCROLL** to go to the LCD Info 3 display, the computer will show you the main variation of the problem, using the board lights and/or the LCD screen. You can watch all the moves to mate without having to move any pieces.

Section 6.4 tells you how to enter and solve chess problems with the computer.

6. Verifying and setting up positions

In this chapter you will learn two important things: how to check whether all pieces are correctly located on the board, and how to set up special positions.

6.1 Verifying board position

It may sometimes happen that you have upset the pieces on the board or for some other reason are not sure that the position is correct. In such cases you can always verify the board position in the LCD screen. But there is also another method.

Just press one of the piece keys. The computer will use the board lights to show you where that piece is located on the board. Press the same piece key again to find further pieces of the same kind. When there are none left the computer will turn off the board display. You can check other pieces by pressing the appropriate piece keys, in any order you like. To change colors press **TAB/COLOR**. To return to normal play press **NORMAL**.

Note that when the computer is showing you the location of a piece on the chessboard the piece type and its coordinates are also shown in the Info line of the LCD screen.

6.2 How to change the board position

This, too, is very easy. First press **SET UP** to put the computer into set up mode (the MODE light turns red and you will see "Set up" in the LCD display). You can now remove or add pieces at will:

- **To remove a piece** simply remove it from the board. Note that it also disappears from the LCD chessboard.

- **To add a new piece** first select the color (by pressing **TAB/COLOR**) if necessary. Now press the appropriate **Piece Key** and place the new piece on the empty square. Watch the piece appear on the LCD chessboard.

Make sure that the WHITE or BLACK lights correctly indicate the side to move next before you return to normal play by pressing **NORMAL**.

Try the following experiment: Press **NEW GAME** and **SET UP**. Now remove the black Queen from the board. Press **NORMAL**. The familiar new game signal (low-high-low-high) will tell you that the computer has accepted the position. It will play the game without its Queen (this is known as a "Queen-odds" game). Try adding a second black King to the position. When you press **NORMAL** you will hear an error beep (high-low) indicating that the computer does not accept the illegal position.

6.3 Setting up special positions

To set up a special position which contains only a few pieces, it is better to start from scratch. Press **SET UP**, then **FUNCTION,** and **NEW GAME**. This clears the board of all pieces (LCD: "Clear board"). You can now enter the position as described above.

Example: To set up a position with white King on E1, white Rook on A1, black King on D5, and black Rook on B2, first place the pieces on the board. Now press

NEW GAME, SET UP	Set-up mode (MODE light red)
FUNCTION, NEW GAME	Clear board
TAB/COLOR	(if necessary) to turn on the WHITE light

Press the KING key and then lift up the white King briefly. Check that it appears on the LCD board.

Press the ROOK key and then lift up the white Rook on A1.

TAB/COLOR	turns on the BLACK light

Press the KING key and then lift up the black King on D5.

Press the ROOK key and then lift up the white Rook on B2.

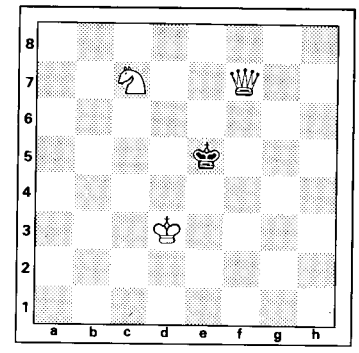
TAB/COLOR	WHITE light on = White to move
NORMAL	return to normal Play Mode

Note: In the above position the computer will permit castling. If you press **PLAY**, it will castle and capture the black Rook on the next move!

6.4 Chess problems

Your Renaissance has a special problem mode (level B8) in which it will solve chess problems up to mate in 20 moves.

Here is an example:



Problem by William A. Shinkman
White to play and mate in 3 moves

Enter this position as described in the last sections: **SET UP, FUNCTION, NEW GAME**, KING Key, place the white King on D3, QUEEN Key, white Queen on F7, KNIGHT Key, white Knight on C7, **TAB/COLOR**, KING Key, black King on E5, **TAB/COLOR, NORMAL**.

In this position White has an overwhelming material advantage and there is no doubt that he can easily mate the black King. But whereas in chess the ultimate aim is to checkmate the opponent, the goal in chess problems is to **checkmate the opponent in a given number of moves!**

The problem requires that White mate on his third move at the latest, against any defence by Black. The solution is not easy to find and, unless you are an experienced problem solver, you may not find it at all. For the computer it is trivial. Set level B8 and press **PLAY**. In just a few seconds it will show you the startling solution: 1.Nc7-a8!, the only move that leads to mate in three. You can try to defend the position for Black by entering moves as usual. The computer will continue playing the checkmating side until the game is over. Or you can just press **INFO** or use **SCROLL** to set LCD Info 3 (see Section 5.4.3) and view the checkmate variations on the board or the LCD screen: 1.Nc7-a8 Ke5-d6 2.Kd3-d4 Kd6-c6 3.Qf7-d5 mate.

Chess problems such as the above are generally found in newspapers and magazines and usually adhere to certain fixed conventions. Unless otherwise stated, the problem will always require White to play and deliver mate in a certain number of moves against any defence Black may put up. The caption to the diagram may be as in our example, or it may simply say "Mate in three" or "Mate in four".

7. The programmable library

Your Renaissance has many features that are very useful and exceptional in the chess computer world. As we have seen (in section 2.9) it remembers the board position and the entire game even when you switch it off by pressing **STOP**. You can resume play exactly where you left off, weeks or even months later. But you can go a step further and store entire games in the computer's built-in library.

7.1 Storing a game in the library

Let us assume you have just finished playing a fine game against the computer and think you might want to take another look at it later. Well, then store it in the computer's programmable library! First press **LIBRARY** to get into Library mode. The MODE light and four board lights will flash (the MODE light in red). The computer is offering you a memory "slot" for the game. If you have not yet stored any games, the square A1 will flash. In the LCD screen you will see "Lib" (Library mode) and "A1" (flashing). Press **FUNCTION,** ⊕. The board lights will turn steady to indicate that the computer has stored the game in slot A1. Press **NORMAL** to exit Library mode. It's as simple as that!

You can store not only the games you play against the computer but also ones you input manually (see section 4.8). You can also store special openings, positions, or chess problems including their solutions. Whatever you put into a memory slot is stored permanently and will not be lost even when you switch the computer off.

Please note: if you have "marked" positions in a game as described in section 4.7 and stored the game in the library, then the marks are stored as well.

7.2 The memory banks

When you store a game in the programmable library you of course do not have to accept the memory slot the computer is offering you. By using ⊕ ,⊖ and **TAB/COLOR** (in Library mode) you can choose any of the 64 squares of the chessboard to store your game. Just make sure the slot you are using is empty, i.e. that the board lights are flashing.

The computer can store a total of 4,000 moves - which certainly adds up to a lot of games. To make it easier for you to classify and keep track of them, there are six separate memory "banks".

When you pressed **LIBRARY** you may have noticed that the King symbol was displayed in the LCD as well as the slot the computer was offering you. This meant that you were in the first bank (the "King's bank"). By pressing **FUNCTION** and one of the other **Piece Keys** you can switch to any of the other five banks. Each has 64 slots of its own, which adds up to six times 64 slots. However, the very last one - H8 in the Pawn's bank - is reserved for internal use by the computer, so that you can store games in a total of 383 slots.

You will appreciate this system of banks and slots when you begin storing large numbers of games and positions. You might put the games you play against the computer in the King's bank, famous games in the Queen's bank, chess problems in the Bishop's bank, and others. Or if you want to build up an extensive openings library (see section 7.4 below) you might store all King-Pawn openings in the King's bank, Queen-Pawn openings in the Queen's bank. It is advisable to keep a note of where you store anything (e.g. "Queen's bank, E1: First game of the 1987 World Championship Match between Kasparov and Karpov").

7.3 Retrieving games

So how do you recover the games you have stored in the library? First press **LIBRARY** and then, if necessary, **FUNCTION** and a **Piece Key** to get into a specific memory bank. Now use **TAB/COLOR,** ⊕ and ⊖ to go to the slot you want. The board lights will be steady if there is actually a game stored there. Press **FUNCTION** and **NEW GAME**. This loads the game into current memory and you can play through it by pressing **ANALYSIS,** ⊕ .

There is another way to find a game in the library. Say you remember the first few moves of the game. Enter them in Analysis mode and then press **LIBRARY**. The computer will look for the game that contains these moves and show you the slot where it is stored. Press **NORMAL** and the rest of the game is copied into current memory. You can play through it by pressing **ANALYSIS,** ⊕ .

If there is more than one game that matches the moves you entered, then the computer will keep pointing to game slots each time you press **LIBRARY**. After the last game it will offer you a free slot (flashing board lights) to store the moves. Press **LIBRARY** again to return to the first matching game.

The above, of course, also applies to positions and chess problems. If you set up and enter a position and then press **LIBRARY** the computer will check to see if the position is already in the library. If it is, the board lights will be steady, and you can press **NORMAL** (or **FUNCTION, NEW GAME**) to copy the moves into current memory. If the computer cannot find the position, then it will offer you a slot (flashing board lights) in which you may store it for future use (press **FUNCTION,** ⊕).

7.4 Storing active openings

As we have just seen, you press **FUNCTION**, ⊕ to store a normal game or sequence of moves. Pressing **FUNCTION, TAB/COLOR** instead also stores the game, but with an important difference: The game becomes part of the Renaissance's openings library! This means that the computer will play the moves of its own accord during normal games. In the LCD you will see "Lib-U" and the bank/slot.

This function is used to extend the computer's built-in openings library. Try the following experiment: Enter the moves 1.e2-e3 e7-e5 2.Bf1-c4, Nb8-c6 3.Qd1-h5 Ng8-f6 4.Qh5xf7 mate and then press **LIBRARY, FUNCTION, TAB/COLOR**. If you now start a new game with the move 1.e2-e3 the computer will play the above sequence of moves, allowing you to mate it in four moves. This is a mean trick to play on an innocent computer, but it serves to illustrate how you can store openings that become active in normal play.

7.5 Deleting games

You will probably want to delete the above "opening" as quickly as possible. Or let us assume you have filled up the computer's memory completely - which should take you quite a while! - and are unable to store any more games (you get an error signal if you try). So you want to delete some of the games that are no longer of interest. Or perhaps you just want to "tidy up" and get rid of old material. To delete a game just go into Library mode, choose the memory slot of the game you wish to delete, and then press **FUNCTION,** ⊖ . The board lights will start to flash indicating that the slot is now empty.

7.6 Things to remember

Here's a short summary of the commands in Library mode:

LIBRARY	enter library mode (MODE light flashes red), then:
FUNCTION, Piece Key	choose bank
TAB/COLOR, ⊕ / ⊖	choose memory slot

If the board lights and LCD are flashing, then the slot is empty, if they are steady then there is a game in the slot.

FUNCTION, ⊕	copy the current game or position into an empty slot
FUNCTION, TAB/COLOR	copy the current game into that slot and make it part of the computer's openings library
FUNCTION, NEW GAME	load the game stored in that slot
FUNCTION, ⊖	delete game stored in that slot
NORMAL	return to normal play

If you have made some moves in a game or entered a special position:

LIBRARY	search for a game that matches the moves including any position markers or the position
NORMAL	add the rest of the moves to the current game

8. Terminal Position Analysis

Chess computers are not just fun, they can also be valuable instruments of study, especially for keen players who wish to improve their playing strength and understand more about the game. The Renaissance has some very powerful analytical features that support this need.

If you want the computer to analyse a position for you, then the standard procedure is to set it to Analysis level B7 and to have the computer work on the position for as long as possible. You come back periodically to see whether it has found something interesting.

You can also set it to selfplay as described in section 4.3 and have it play on against itself overnight, say on level B2. The next morning you can run through the game and see the best continuation the computer has found for both sides.

But what if you want to do this all on a larger, more systematic scale? For anyone interested in deeper chess study there is a function called Terminal Position Analysis (TPA) that allows you to set the computer to work analysing a whole series of games.

8.1 Marking games for analysis

Before we can begin to use the TPA function we must tell the computer which games it should analyse. This is done by storing them with a special key sequence in the library. Instead of using **FUNCTION,** ⊕ as with normal games (see section 7.1) you must use **FUNCTION, PLAY** to **store the game and mark it for analysis.** You will see the message "Lib-t" (instead of just "Lib") in the LCD screen. Otherwise everything remains the same. The game is stored in the programmable library just like any other, and it can be later retrieved and replayed.

So this is how to store a game and mark it for analysis:

Press **LIBRARY** to enter Library mode.

Press **FUNCTION** and a **piece key** to choose a bank.

Press **TAB/COLOR**, ⊕ **and** ⊖ to choose an empty memory slot (board lights and LCD should be flashing).

Press **FUNCTION, PLAY** to copy the current game or position into that slot **and mark it for analysis.**

8.2 Entering TPA mode

After you have stored one or more games for Terminal Position Analysis you can switch the computer into TPA mode by pressing **FUNCTION, LIBRARY**. This should be done in Normal mode (i.e. with the MODE light green - press **NORMAL** first to make sure).

Pressing **FUNCTION, LIBRARY** causes the computer to abandon the current game (so be sure you do not need it any more!) and load the first TPA game it finds in the library. It jumps to the final position of that game and begins computing the next move. If you now press **TAB/COLOR** it will stop computing, load the next TPA game, jump to the final position and wait for further instructions.

So you can view all the positions that have been prepared for analysis by pressing **FUNCTION, LIBRARY, TAB, TAB,...** Pressing **FUNCTION, LIBRARY** in TPA mode will cause the computer to advance to the next TPA game and start computing a move. To exit TPA mode and return to normal play press **NEW GAME**.

8.3 Analysing the marked positions

So far we have only marked games for analysis and gone for a quick visit into TPA mode, viewing the games stored for Terminal Position Analysis in the library. But now we shall put the computer to work on these games.

Try the following: Set level A1 and press **FUNCTION, LIBRARY**. The first TPA game will appear in the LCD screen and the computer will start working on the final position. After 60 seconds it will come up with a move. The reason it took so long is that the computer multiplies the time allocation for levels A1 to A8 by 60 in TPA mode, so that seconds become minutes and minutes hours. Level A1 is normally 1 second, in TPA mode it is one minute. The tournament and sudden-death levels (B and C) are not suitable for TPA analysis, so these are automatically translated to five minutes per move. If you want to use any of the original time controls you can do so by **changing levels in TPA mode.**

While the computer is thinking in TPA mode you can use the normal Info functions (best on the LCD chessboard) to view the main variation, depth of search, elapsed time, etc. In Info screen 2 there will be no countdown times displayed, but instead information on the library slot of the TPA game.

After the computer has played a move in TPA mode you can scroll through the Info displays (on the LCD screen) and view all the information available there (as described in section 5.4). If you return to the same game later on - in TPA mode or by simply loading it from its library slot - you will notice that the main variation has been automatically stored with the game. You can play through it by pressing **ANALYSIS**, ⊕, ⊕, ...

We can now proceed to the next TPA game by pressing **TAB/COLOR**. This too appears with its final position on the LCD screen, and if you press **PLAY** the computer will begin analysing that position. In this way you can proceed from one game to the next and have the computer analyse each terminal position for you. The next time around (i.e. when you return to first game) it will work on the next move, discarding the previous main variation and adding a new and deeper one to the game stored in memory.

8.4 TPA in Selfplay

This is where Terminal Position Analysis becomes really powerful. It is actually possible to tell the computer to analyse a whole series of games - or the relevant positions of one game - very thoroughly and store all the results for later review. Just imagine: You go away for a week, and during that time the computer is analysing ten difficult studies at one hour per move (setting level A6 before entering TPA translates to this "extended" time control). When you return you have extremely deep analysis on each game, stored in the computer's programmable library, waiting for you to play through it.

And this is how you can go about it:

1. Enter and store the positions as TPA games in the library. It is advisable to use consecutive slots so that you do not end up with TPA games randomly distributed all over the place (if you do, however, they can be easily found with **FUNCTION, LIBRARY, TAB, TAB,...** as described in section 8.2). Perhaps you should reserve a memory bank (see 7.2) for analysis.

2. Once the positions are in the library, set the level you think most suitable (e.g. level A6 if you want the computer to work for one hour on each move).

3. Press **FUNCTION, PLAY** to set Selfplay mode (see section 4.3).

4. Press **FUNCTION, LIBRARY** to start TPA.

and optionally:

5. Press **SOUND** to switch the sound off, if the hourly beeps from the computer are worrying somebody.

6. Press **SCROLL** and/or **INFO** to set an appropriate Info display if you will be checking now and again to see how the analysis is coming along (you can change these at any time during TPA).

Please note that you can also enter TPA mode first and then start Selfplay, but the above method is more straightforward.

TPA may also be used to analyse all the positions or, more usefully, just the most important positions of a single game. To do so, play through the game in Analysis mode. Whenever you reach a position that you want the computer to analyse, store the position in a new slot as a TPA game (i.e. with **FUNCTION, PLAY** in Library mode). Set a suitable level, start Selfplay and TPA, exactly as described above. If you have marked ten positions of the game for analysis and set level A6, then ten hours later - next morning - you will have ten deep analyses of these positions, in the form of main variations.

8.5 Reviewing the data

So the computer has been working all night on your study positions or those marked in your game. What is the best way to view the results? Well, first of all we must terminate the analysis. This is best done by pressing **PLAY** so that Renaissance will execute the move it is currently computing. If you omit this step then the last move will not be stored with the current game.

Now there are two possibilities. If you only want to take a quick look at the results of the games, just press **TAB/ COLOR** repeatedly. The computer will show you all the final positions after its analysis. Please note that there are moves stored behind these positions, but they belong to the main variation of the final analysis. You can view them by pressing ⊕, ⊕, ⊕, ... in Analysis mode.

The other possiblity is to simply exit TPA mode. To do so press **NEW GAME**, which terminates Selfplay mode as well. You are now set to review the results of the computer's labours in great detail.

Load the first TPA game from the library. Press **ANALYSIS** and then **FUNCTION, ⊕**. This takes you to the original terminal position from which the computer started its analysis. Now press ⊕ , ⊕ , ⊕ , ... to review the moves the computer found. You can do this on the LCD board, or you can transfer the position to the main board by pressing **FUNCTION, NEWGAME** and adjusting the physical board. In the latter case you can not only follow the computer's moves but also do some analysis of your own by moving the pieces and playing on against the computer.

Later, you can tell the computer to continue the analysis by going back into TPA mode and Selfplay (**FUNCTION, PLAY, FUNCTION, LIBRARY**, it's as simple as that!). The computer will resume work on the TPA games, starting this time from the last move it actually executed, but before the main variation analysis that was stored together with the game.

9. Communication with a personal computer

9.1 Introduction

In a world of personal computers it is natural that the Renaissance should be able to link up directly with these machines. Using its own unique communications link, **OSA** (for "Open System Architecture"), the Renaissance can connect directly with a printer, a PC or even a mighty mainframe. Two-way communication is possible to provide boundless facilities.

Here are some of the things Renaissance can do:
Linking to a printer only: You can immediately get a continous print out of your game, the time taken per move, take backs made, position diagrams, and total time taken by both sides (see Appendix 1).

Linking to a personal computer: You don't need to be a skilled programmer to link your Renaissance to a personal computer. Once the connection is made you will see the computer's analysis of each main continuation while it is thinking, and its evaluation of the end position. The personal computer can store all the information on disk. Why not program the Renaissance to analyse one of your games over a weekend? Ask it to think for an hour (or longer) over each move in turn and then print out all the moves with a position evaluation and main line continuation alternative. In that way you can see at what point the game was won or lost. You can even connect your Renaissance to a modem and exchange chess information with chess players worldwide.

9.2 Languages

The Renaissance's built-in communications program understands English, German, French, Dutch, Spanish, Italian and Swedish.

The three programming languages are:

BOSAL - Basic Open Systems Architecture Language
MOSAL-A - Machine Open Systems Architecture Language (ASCII)
MOSAL-B - Machine Open Systems Architecture Language (Binary)

BOSAL is the easy-to-use, powerful language for all users. Anything you can do on the Renaissance can be remotely controlled in **BOSAL**. From the keyboard of a personal computer you can access the evaluation, record every Info display and list the game or any position at any time. Adjust the clocks. Set the level. Change to another of the seven built-in foreign languages. And there is a Help function to assist you all the time.

If you are an advanced programmer you will want to plunge deeper and faster with the two related languages **MOSAL-A** and **MOSAL-B** (Machine **OSA** Language, ASCII/Binary). These allow more detailed interaction with all aspects of the Renaissance. With **MOSAL-A** you can exercise your control directly in ASCII. **MOSAL-B** works twice as fast: it has the same formats but sends them in packed byte form.

9.3 Equipment needed

The Renaissance can be connected directly to any RS-232C interface printer without the need for a computer intermediary. It can be a portable typewriter/terminal such as the Brother EP-44, Brother 1109, or a computer printer like the Epson FX-85, equipped with serial interface.

All computers with an RS-232C interface can be linked to Renaissance. Atari ST computers require Adapter Ia, Art. No.590 (see Fig.3). The Commodore C-64, C-128, VIC-20 require Adapter IV, Art. No.591 (see Fig.4). IBM PC and Amstrad/Schneider CPC require Adapter III, Art. No.593 and Apple II computers require Adapter II, Art. No.592 (see Fig.3).

All adapters are available through your Kasparov dealer.

9.4 Where to obtain your OSA Link guide

If you are interested in linking the Renaissance to your personal computer, you will need the OSA Link Guide. This will be supplied with the purchase of an OSA connecting cable. Please ask your Kasparov dealer.

10. Some technical details

10.1 Setting parameters

There are several options and parameters of the Renaissance that can be adjusted according to the user's wishes. To change most of the parameters you must press **SET UP** (MODE light red) and then **INFO**. The first option appears in the LCD screen. Each time you press **INFO** the next option is displayed. Use the ⊕ key to switch between options, and **NORMAL** to return to normal mode. The parameters you have set (except for "board off") will be saved, even when you switch off the computer.

The options can be set at any time during a game, even when the computer is thinking. Pressing **SET UP, INFO, INFO...** will display the following options:

1. "delay on" = time delay for moves in self-play

   When you use the Selfplay function (described in section 4.3) the computer normally displays each move it makes by flashing it for three seconds on the LCD chessboard. Press ⊕ to switch this delay off if you want the moves to be executed instantaneously. (Press ⊕ again to switch it back on).

2. "Flash on" = flash moves on LCD chessboard

   If you turn this off then the moves displayed on the LCD board during takeback and replay (see section 4.6) and in Info mode 3 (see section 5.4.3) will not flash, i.e. the pieces will not move back and forth but simply jump to its destination square. Some people find this more convenient.

3. "tourn off" = tournament clocks

   Normally the computer will stop its clock as soon as it announces a move, and start your clock as soon as the move has been completed on the board. This adds to the total time of the game, which may not be acceptable in formal tournaments. If you switch "tourn on" (by pressing ⊕) then the computer's clock will remain ticking until the move has been completed on the board.

4. "OSA 1.5" = OSA version

   Displays the OSA version number of your set. You cannot change this display with ⊕.

5. "Pio on/off" = Expansion module

   This tells you whether an expansion module is connected and successfully communicating with your Renaissance. Again you cannot change this display with ⊕.

6. "Sio (language)" = OSA language

   Switches between the OSA communication languages BOSAL, MOSAL-A and MOSAL-B (see section 9.2). If the "Sio" is blinking this means that

the OSA link is currently not opened, otherwise it will be steady. See your OSA Link Guide for full instructions on communicating with a PC.

7. "Sio (mode)" = OSA protocol

You can choose between the modes "Str" (Stream), "Pause" (Wait) and "Echo" (Byte echo), which are all described in your OSA Link Guide. Again the "Sio" will be steady if communications are opened.

8. "bosal (language)"

Selects which (human) language the computer uses when communicating in BOSAL. Choose one of the following:

En	=	English (default)
dE	=	German ("Deutsch")
Fr	=	French ("Français")
nE	=	Dutch ("Nederlands")
ES	=	Spanish ("Español")
It	=	Italian ("Italiano")
Su	=	Swedish ("Svenska")

Pressing ⊕ after the last is displayed returns you to the first. Consult your OSA Link Guide for full details on BOSAL.

9. "board on" = Board status

You can switch off the main sensor board when communicating with a personal computer (if you want to only use Renaissance's playing intelligence). Of course you will have to switch the board back on again if you wish to play a normal game.

10. "Full clock" = Move format

When BOSAL sends moves to a printer or personal computer you can decide in which format it should be. "Full" means that the FROM and TO squares will always be given, separated by a hyphen. "Short" means that only the TO square is given in standard format (e.g. Rc1 or, if necessary, Rac1). If "clock" appears in the display then the clock times for each move are also given, if "algeb" appears then it means that algebraic notation is being used but no clock times are transmitted.

11. "baud 1200" = Communications speed

You can set the "Baud rate" for communication with your personal computer or printer. Use ⊕ to choose between 110, 300, 1200 (default), 2400, 4800 and 9600 bits per second.

12. "cr-lf on" = Line Feed after Carriage Return

If this is on then a "Line Feed" character (LF) will be sent after every Carriage Return character (CR). Switch off if you are getting double line spaces on your printer. See your OSA guide for further details.

13. "dly:cr .25"" = Delay after CR

When the Renaissance is connected to a printer it is useful to have a .25 second delay after each line (CR) so that the print head has time to return to the left margin. You can set this to "0.0" for zero delay when communicating with a personal computer.

14. "End" = End of parameter set-up

Of course you can also exit at any stage by pressing **NORMAL**.

> **Please note:**
> Pressing **SET UP, FUNCTION, LIBRARY resets the first three parameters to their original values** (display: "all reset").

10.2 Changing the batteries

Weak batteries should be replaced promptly as they might leak and cause damage to the computer. One set of batteries will give you about 150 hours of play. When batteries are low the computer will start to beep regularly and a white or black "B" will appear in the LCD screen. This happens several playing hours before the batteries actually expire, so you have ample time to remedy the situation (about a month if you do not play for more than half an hour before pressing **STOP**).

If you have games stored in the user-programmable library (see chapter 7), then you must take certain precautions when changing batteries. First switch the computer off by pressing **STOP**. Have the new set of batteries ready and then **exchange the first pair of batteries on the left as quickly as possible.** You can easily do so in less than 20 seconds. This ensures that the contents of the library are not lost. After that you can exchange the second pair of batteries.

10.3 The mains adapter

If you are using a mains adapter you should take the following precautions to ensure that the contents of the user-programmable library are not lost. Whenever attaching the adapter, press **STOP** to make sure that the computer is switched off. Connect the adapter first to the mains and then to the adapter socket of the computer.

It is recommended that the batteries are left in the Renaissance even when using the adapter. This will protect the stored games if the power supply is interrupted.

10.4 The ACL key

If the computer locks up because of static discharge or for some other reason, press **STOP** and then use a paper clip or some other sharp object to press the **ACL** key for a few seconds. This resets the computer. **It also clears the memory so the contents of the user-programmable library are lost.**

10.5 Care and maintenance

Your Renaissance is a precision electronic device and should not be subjected to rough handling or exposed to extreme temperatures or moisture. Do not use chemical agents to clean the set as these may damage the wood.

10.6 Technical specifications

Microprocessor:	6301Y
Processor speed:	10 MHz
Program memory:	32 Kbytes
RAM memory:	8.25 Kbytes
Memory retention:	2 years (fresh alkaline batteries)
LED lamps:	85 red, 1 triple-color
Keys:	23 + ACL
LCD screen:	50 x 64 mm, 448 segment chessboard, 76 segment Info display, 7x7 dot matrix zone
Power consumption:	0.4 W (excl. module)
Battery requirement:	4 "C" cells (type AM2/R14)
Battery life:	150 hours (alkaline batteries)
Battery low warning:	4 hours minimum
AC adapter:	7-9V DC at 300 mA minimum with 2.1mm ID / 5.5mm OD plug
Dimensions:	520 x 520 x 50 mm
Weight:	4.8 Kg (without batteries)

Saitek reserves the right to make technical changes without prior notice in the interest of progress.

10.7 Troubleshooting guide

SYMPTOMS	POSSIBLE CAUSES	WHAT YOU SHOULD DO
1. Batteries inserted and the computer does not operate	Batteries not inserted properly	See Fig. 1
	Power reset problem	Press **ACL** key (see section 10.4)
2. The computer keeps beeping, does not play moves	Batteries weak or bad	Replace batteries (see section 10.2)
3. Computer does not operate with adapter	Wrong adapter type, voltage rating, etc.	Check with dealer Use Saitek recommended adapters only
	Defective adapter	If the computer works on batteries but not with the adapter then the adapter is probably defective. Send it to the Service Centre
4. All lights turn on, the computer behaves erractically or "freezes" in the middle of a game	Power or reset problem, static discharge or mains disturbance	Unplug adapter, take out batteries, press **ACL** key, check mains connection (both adapter plugs should fit snugly), reinstall batteries and switch on again
5. Light, key or chessboard square does not work	Defective component or contact	Consult your Service Centre
6. Computer cheats or makes illegal moves	It has made a special move like - En passant - Castling (king or queen side) - Pawn promotion/ underpromotion	Make sure you are familiar with the chess rules (read the "Rules of Chess" manual). Use the piece keys or LCD chessboard to check thee current board position (see section 6.1), then take back a move and check the previous board position. This will tell you exactly what the computer has done
	Your board position is not correct, some pieces have been displaced	Verify the board position (see section 6.1)
7. The computer refuses to accept a move	You are trying to make an illegal move	Is it your turn? (look at the color lights). Is your King in check? (CHECK symbol on LCD Info display). Is the game over? (checkmate or draw). Will your move put your King into Check? Are you trying to castle incorrectly? (check the rules). Did you move the Rook first when castling? Is one of the pieces displaced? (flashing lights for that square)

SYMPTOMS	POSSIBLE CAUSES	WHAT YOU SHOULD DO
8. A Pawn moves like a Queen (or Rook, Bishop or Knight)	The Pawn has been promoted	Use the piece keys or LCD chessboard to confirm the board position. Take back moves until before the promotion and allow the computer to make the move again
9. The King moves like a Queen	King and queen were swapped around in the initial position	Use the piece keys to confirm the identity of the pieces
10. Computer will not reply to your moves	You are in Analysis mode (see section 4)	Press **NORMAL** and then and **PLAY**
	The computer is still thinking (color light flashing)	Press **PLAY** to interrupt (see section 4.2)
	Level B7 (analysis) or B8 (problem solving) is set (see section 3.4)	Verify the level
11. The computer is silent	The sound is off (see section 2.8)	Press **SOUND** to turn it on again
12. The computer won't store a game	The memory slot is occupied (see section 7.2)	Clear the slot (see section 7.5) or choose another slot
	The library is full	Delete unimportant games (see section 7.5)
13. Computer makes instant or irrational moves	Excess time has been accumulated by computer's side	Press **STOP** whenever you leave Renaissance for any length of time to stop the internal clocks
14. LCD display difficult to read	LCD contrast not adjusted or weak batteries	Adjust the LCD contrast slider to suit your viewing angle. Replace batteries with fresh ones if still out of adjustment range
15. Nonsense in the display when power comes on	Static discharge or mains disturbance	Press **STOP**. Wait about 20 seconds then press **GO**

Appendix I

1.	d2-d4	00:03	d7-d5	00:03
2.	c2-c4	00:02	e7-e6	00:03
3.	Nb1-c3	00:02	c7-c5	00:03
4.	Ng1-f3	00:09	Ng8-f6	00:09
5.	Bc1-g5	00:04	d5 × c4	00:24
6.	e2-e4	00:08	c5 × d4	00:12
7.	Nf3 × d4	00:03	e6-e5	00:06
8.	Nd4-c2	00:26	Qd8 × d1 +	00:13
9.	Ra1 × d1	00:04	Bc8-g4	00:07
10.	f2-f3	00:07	Bg4-e6	00:03
11.	Nc2-e3	00:08	Bf8-b4	00:04
12.	Bf1 × c4	00:16	Be6 × c4	00:11
13.	Ne3 × c4	00:04	Nb8-c6	00:03
14.	a2-a3	00:50	Bb4 × c3 +	00:08
15.	b2 × c3	00:02	O-O	00:08
16.	Bg5 × f6	00:01	g7 × f6	00:08

> **POSITION**

```
r - - - - r k -
p p - - - p - p
- - n - - p - -
- - - - p - - -
- - N - P - - -
P - P - - P - -
- - - - - - P P
- - - R K - - R
```

> 17.	Nc4-d6	00:33	b7-b6	00:07
18.	Nd6-f5	00:11	Ra8-d8	00:08
19.	0-0	00:02	Rf8-e8	00:06
20.	c3-c4	00:22	Nc6-d4	00:09
21.	Nf5 × d4	00:16	Rd8 × d4	00:06
22.	Rd1 × d4	00:03	e5 × d4	00:16
23.	Rf1-d1	00:09	Re8-d8	00:03
24.	g2-g4	01:02	d4-d3	00:06
25.	Kg1-f2	00:01	f6-f5	00:13
26.	g4 × f5	00:05	Rd8-d6	00:14
27.	Kf2-e3	00:04	Rd6-h6	00:03
28.	Rd1 × d3	00:04	Rh6 × h2	00:06
29.	Rd3-d2	00:31	Rh2 × d2	00:13
30.	Ke3 × d2	00:02	h7-h5	00:03
31.	Kd2-e2	00:01	h5-h4	00:05
32.	Ke2-f2	00:01	Kg8-g7	00:08
33.	Kf2-g2	00:01	Kg7-f6	00:08
34.	Kg2-h3	00:01	Kf6-g5	00:06
	Takeback		Takeback	
34.	f3-f4	00:02	Kf6-e7	00:13
35.	e4-e5	00:06	f7-f6	00:05
36.	e5-e6	00:01	Ke7-d6	00:13

42. e3-e4 00:17

```
Sendinfo = 00:00  1 +00909   c7-d5 c4-c8
Sendinfo = 00:01  1 +00137   d6-e5
Sendinfo = 00:01  2 +00137   d6-e5
Sendinfo = 00:02  2 +00157   d6-e5 a3-a4
Sendinfo = 00:02  2 +00156   b6-b5 c4-d4 d6-e5
Sendinfo = 00:03  2 +00155   a7-a6 a3-a4
Sendinfo = 00:03  3 +00155   a7-a6 a3-a4
Sendinfo = 00:05  3 +00177   a7-a6 f4-d5 b6-b5
Sendinfo = 00:05  3 +00156   b6-b5 c4-d4 d6-e5
Sendinfo = 00:06  4 +00156   b6-b5 c4-d4 d6-e5
Sendinfo = 00:09  4 +00161   b6-b5 c4-d4 d6-e5 d4-d7
Sebdinfo = 00:16  5 +00161   b6-b5 c4-d4 d6-e5 d4-d7
Move Ready 00:18
```

b6-b5 00:20

43. Rc4-c5 00:05

```
Sendinfo = 00:00  1 +00927   c7-d5 c5-c8
Sendinfo = 00:01  1 +00338   f6-f5 e4-f5
Sendinfo = 00:01  1 +00164   d6-d7
Sendinfo = 00:02  1 +00142   a7-a5
Sendinfo = 00:02  2 +00142   a7-a5
Sendinfo = 00:03  2 +00147   a7-a5 f4-d5
Sendinfo = 00:03  3 +00147   a7-a5 f4-d5
Sendinfo = 00:08  3 +00201   a7-a5 c5-f5 a5-b4 f5-f6 d6-e5
Sendinfo = 00:12  3 +00183   c8-b8 f4-d5 c7-e6
Sendinfo = 00:13  4 +00183   c8-b8 f4-d5 c7-e6
Sendinfo = 00:26  4 +00178   c8-b8 f4-d5 c7-e6 c5-c3
Sendinfo = 00:32  5 +00178   c8-b8 f4-d5 c7-e6 c5-c3
Move Ready 00:33
```

Rc8-b8 00:35

POSITION

```
- r - - - - - -
p - n - - - - -
- - - k - p - p
- p R - - - - -
- P - - P N - -
P - - - - K - -
- - - - - - P P
- - - - - - - -
```

>CLOCKS

```
Clocks = 14:06 37:30 00:13
```

Playing against a Kasparov chess computer is an ideal way to learn the skills of chess and improve your game. There are many good books written on chess and the following are some we recommend:

'HOW TO GET THE MOST FROM YOUR CHESS COMPUTER'
by Julio Kaplan
R.H.M. Press

'CHESS OPENINGS (BCO)'
by Garry Kasparov & Raymond D. Keene
Batsford Books

'LEARN FROM THE GRAND MASTERS'
by Raymond D. Keene
Batsford Books

'OPENING REPERTOIRE FOR WHITE'
by Raymond D. Keene
Batsford Books

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United Kingdom

Authorized Service Centers

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Wheelers Hill 3150
Melbourne

AUSTRIA
Kasparov Chess Computer Center
Theuretzbacher & Co.
Lemböckgasse 49
A - 1232 Vienna

DENMARK
Kasparov Chess Computer Center
Finn Andersen en Gros
Industrivængnet 37
DK - 3700 Hillerod

FINLAND
Kasparov Chess Computer Center
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P.L. 97 / Maapallonkatu 8
SF - 02211 Espoo

FRANCE
Kasparov Chess Computer Center
Transecom S.A.
Parc d'Activités "Les Doucettes"
12 Av. des Morillons
F - 95140 Garges-lès-Gonesse

GERMANY
Kasparov Chess Computer Center
SISO Spielwaren GmbH & Co. KG
Postfach 4751
Duisburger Straße 57
D - 8500 Nürnberg - Hafen

HOLLAND, BELGIUM, LUXEMBOURG
Kasparov Chess Computer Center
Electronics Nederland bv
Tijnmuiden 15/17/19 (1046 AK)
NL - 1005 HB Amsterdam

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Kasparov Chess Computer Center
Bondwell Trading Ltd.
2/F, Chung Nam Center
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Kwun Tong, Kowloon

ICELAND
Kasparov Chess Computer Center
Goddi H.F.
Smiojuveg 5
202 Kopavogar

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Kasparov Chess Computer Center
Intelligent Games S.r.l.
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I - 00197 Roma

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Kasparov Chess Computer Center
Sakura Trading Co., Ltd.
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3 - 3, Yanagibashi I-chome
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