

NOVAG[®] carnelian

INSTRUCTION

Technical information

• Program Size	16 KByte ROM, 768 Byte RAM
• CPU clock speed	8 MHz
• Power Consumption	130 mW max
• Power supply	6 x 1.5V UM-3 type (or AA size) alkaline batteries or adaptor Art.No.8210/1021
• Move entry via	Sensor chessboard
• Move indication via	Rank and File LEDs and LCD display
• Extra Error LED	
• Levels	128
• Solve mate in	6
• Opening book size	8500 moves
• Take Back function	25 halfmoves
• Set Up and Verify function	
• Hint and Training function	
• Elegant board	273 x 300 x 27 mm

Technical data subject to change without notice in the interest of progress.

IMPORTANT INFORMATION

- Before replacing/inserting batteries, turn the unit off first and remove the adaptor if connected.
- To insert batteries, open the battery door on the back of the unit by unscrewing the screw and lifting the battery door.
- Batteries must be inserted with the correct polarity and placed on top of the attached ribbon and then replace the battery door again. Batteries must be removed when exhausted. Batteries can be removed by pulling the ribbon.
- Use new alkaline batteries of the same type only and do not mix old and new batteries or batteries of different type, e.g. disposable and rechargeable batteries..
- Do not recharge non-rechargeable batteries.
- Remove rechargeable batteries from the chess computer before charging and charge rechargeable batteries under adult supervision only.
- Any battery charger (for use with rechargeable batteries) or transformer used with the computer should be examined regularly for potential hazards, such as damage to the cable or cord, plug, enclosure or other parts, and that, in the event of such damage, the computer must not be used until that damaged part has been properly removed. Please also note that a battery charger/adaptor/transformer is not a toy.
- If you do not use your computer over a long period of time, please remove the batteries.
- The chess computer is not intended for children under 3 years old.
- Do not short-circuit supply terminals.
- Packing has to be kept since it contains important information.
- Dirt or dust can be removed with a soft cloth. Remove batteries or connection to mains prior to cleaning. Do not use chemical solvents or water on the set. Any damage caused by their use invalidates the warranty. Always keep the computer in a dry and cool place (normal room temperature). Avoid exposing the computer to heat, e.g. spot lights, radiators, sunshine, etc. as this may lead to permanent damage caused by overheating, which is not covered by the warranty.

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WARRANTY

CARE OF THE NOVAG Chess Computer

RULES OF CHESS

GENERAL HINTS

Your NOVAG Chess Computer can be your tutor if you are a beginner or your challenging chess partner if you are already a chess player. In case you are a beginner, we recommend you familiarize yourself with the rules of chess first. Relevant literature is available in bookstores. Before you start to play with your chess computer read first the GENERAL HINTS. The instructions are laid out in such a way that each section is self contained, so you do not have to read everything at once.

BATTERIES:

The NOVAG Chess Computer runs on 6 x 1.5V alkaline batteries (not included). Open the battery door at the bottom of the unit and insert the batteries as indicated by the +/- signs. A set of new alkaline batteries runs approx. 100 hours. Notice that weak batteries make the performance of the computer unreliable.

ADAPTOR:

The NOVAG adaptor (Art.No.8210) is not included with your set, but is available separately from your dealer. Please note that it is a DC 9V adaptor with 300 mA and it has a negative center. If you cannot get the NOVAG adaptor, please make absolutely sure that you do not buy an adaptor which does not have these specifications. If you use a too powerful adaptor it might burn the components in your unit. Before using the adaptor, check that the voltage of your electric mains is within the range specified on the adaptor label.

Make sure you first connect the adaptor with the computer before you plug it into the mains. The adaptor jack is at the back panel of the computer. We suggest to only use the adaptor which has been specially developed for this computer.

MEMORY:

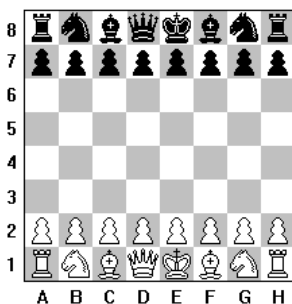
The NOVAG Chess Computer has a long term memory and will retain the last board position. However, make sure that there are batteries in the NOVAG Chess Computer or an adaptor is connected otherwise you will lose the memory contents.

Note: If you are using the SET UP or VERIFY mode the computer will save the current mode when you switch the computer off before you exit these modes. When you switch on the computer again the SET UP LED or the VERIFY LED will be still on. To continue the game or start a new game press the GO key first to exit these modes.

The indicator lights will be referred to as LEDs (Light Emitting Diodes) in the following instructions.

1. SHORT INSTRUCTIONS

- a) Before commencing to play set up the chess pieces in the opening position. White pieces on rank 1 and 2, Black pieces on rank 7 and 8.



- b) The power switch is a 2-position switch and is at the backside of the cabinet. It is marked ON/OFF. Push this switch towards ON (towards the power socket). This switch operates both adaptor and batteries. If you use an adaptor, the batteries will automatically be disabled.
- c) Press NEW GAME. You will hear 3 beeps and the LCD will show " -- -- " with the white block. You can now make your opening move for White.
- d) If you want to increase the level of skill, press the LEVEL key and the square corresponding to the requested level (A1, A2, A3, up the H8). On the LCD display you will see for example "♞E A3" indicating the selected level (see section 6. for level setting and their time controls). Press the GO key to exit the level setting mode.
- e) Your chess computer has a SENSOR chessboard which registers your moves automatically when the appropriate squares are gently pressed. Moves to be executed for the computer are indicated by the rank and file LEDs and are also shown on the LCD display. Each square of the chessboard can be called out by the co-ordinates of each square from a1 to h8. Gently press down the piece you want to move and the two respective rank and file LEDs will light up. Then set the piece down onto the square you wish to move to by gently pressing it down again. (Your complete move will be shown on the LCD display.) Once the NOVAG Chess Computer has registered your move it will immediately start computing its counter move.
- f) To make a move for the computer - once the counter move has been calculated - the Chess Computer will show on the LCD display its move and also the corresponding rank and file LEDs will light up. Gently press on the square indicated, lift up the chess piece and

complete the move as if making this move for yourself. Please remove any captured pieces without applying any pressure on that square.

Note: When your computer is calculating (the Black/White block is blinking) all key presses will be ignored except for the GO key which will interrupt the computer's calculation and force the current move being analyzed to be played at once.

2. IMPOSSIBLE AND ILLEGAL MOVES

Your NOVAG Chess Computer was programmed in accordance with the International Chess Rules and does not accept or make illegal moves.

If you try to make an illegal move, you hear a beep and on the LCD display the "ERROR" sign is shown. Retract your move without pressing on any square. You can now make another legal move.

If you try to move the wrong piece when executing a computer move, you hear a beep and the rank and file LEDs of the correct square will light up. To execute this move correctly press gently on the square indicated.

3. CAPTURING A PIECE

If the computer indicates a move onto a square that is occupied by an opponent's piece, it means that this piece is captured and must be removed from the game board. Simply take it from the board without applying pressure. A computer move will be shown on the LCD display by the symbol "x" and in cases of "en passant" pawn captures this will be indicated by the symbol "EP".

4. GAME FEATURES

a) Castling

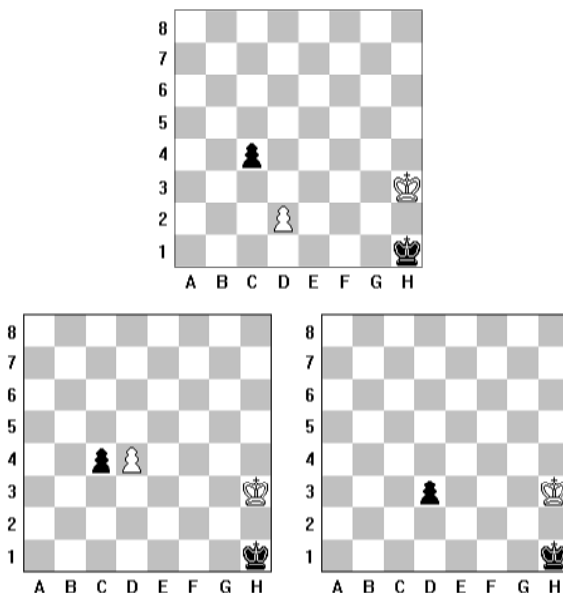
The computer displays Castling with the King's and the Rook's move. When Castling press first the 2 squares for the King and then move the Rook by applying pressure on the appropriate squares indicated by the lit up LEDs. Do the same when executing a Castling move for yourself.

Note: You may not castle while your King is in check, nor may you castle through check. The NOVAG Chess Computer accepts and executes Castlings in set up board positions.

b) En Passant Captures

The computer captures En Passant automatically. You may capture En Passant whenever the rules permit. If you make this special pawn capture you only have to enter the "from" and "to" squares of this move as in a normal move. Please remember to remove the captured pawn

from the board and to gently press that square. When the Chess Computer makes an en passant capture it will show the symbol "EP" on the LCD.



Official Rules of Chess:

A pawn attacking a square crossed by an enemy pawn which has been advanced two squares in one move from its original square may capture this enemy pawn as though the latter had been moved only one square. This capture may be made only on the move immediately following such an advance and is called capturing "**en passant**".

c) Pawn Promotions / Underpromotions

If one of your pawns reaches the opposite side of the board, the chess computer will allow you to promote or underpromote it to any desired piece.

As soon as this happens, the rank and file LEDs of the square flash and the word "Pro?" will be shown on the display. You can now choose the piece you want to promote/underpromote to by pressing the respective Piece Symbol Key. The LEDs will disappear and the computer will start computing its counter move.

If a computer pawn reaches the opposite side of the board, the computer indicates on the LCD display into which piece the pawn will be promoted/underpromoted.

The computer also accepts/executes pawn promotions in set-up board positions.

d) Stalemate /Draw

A Stalemate condition is indicated by the STALE and MATE LEDs as well as on the LCD display.

Draw to insufficient material will be announced by the word "dr Ins" on the LCD display.

e) Check and Checkmate

If the computer puts you in check the CHECK LED will light up and a cross sign "+" will be displayed on the LCD. If you put the computer in check this will not be specifically displayed.

In a checkmate situation the CHECK and MATE LEDs light up and the word "MATE" together with a double cross sign will be shown on the LCD display indicating the end of the game.

SPECIAL FUNCTIONS

5. GAME (New Game Key)

Press the NEW GAME key every time you switch the computer on or whenever you want to commence a new game. The previous game is canceled and in the computer memory all pieces are now in the opening position.

6. SETTING THE SKILL LEVEL (Level Key)

Your NOVAG Chess Computer has a total of 128 level settings to choose from. You can learn and improve your chess skills with this chess computer.

As shown in the chart of playing levels, each level corresponds to one of the 64 board squares. The 128 level settings are grouped into 64 WHITE levels and 64 BLACK levels. The LCD display will show either "LE with the white bar" or "LE with the black bar". However we will use in this instruction the abbreviation 'W' for WHITE level group and 'B' for BLACK level group.

To set the computer to any of these playing levels, press the key marked LEVEL and you will see the current level setting indicated by the two corresponding rank and file LEDs as well as on the LCD display. If this is not the level that you wish to use, please press the corresponding chess board square and /or the LEVEL key once more to change to the required level group.

Example: If you wish to set level 12 (= Fixed Time Level = WB4), press LEVEL key once or twice for the white level setting, then press square B4. This will be indicated by the corresponding rank and file LEDs and you will see "LE b4" with the white bar on display. (Please see level chart and list of playing levels below for reference).

Once you have set the desired level, press GO to exit this mode. Now you may enter your first move.

Numbering system to select the playing levels on the chessboard:

8	A8	B8	C8	D8	E8	F8	G8	H8
7	A7	B7	C7	D7	E7	F7	G7	H7
6	A6	B6	C6	D6	E6	F6	G6	H6
5	A5	B5	C5	D5	E5	F5	G5	H5
4	A4	B4	C4	D4	E4	F4	G4	H4
3	A3	B3	C3	D3	E3	F3	G3	H3
2	A2	B2	C2	D2	E2	F2	G2	H2
1	A1	B1	C1	D1	E1	F1	G1	H1
	A	B	C	D	E	F	G	H

Note: When you are selecting the playing levels the Black/White LEDs as well as the VERIFY and SET UP LEDs will light up.

You may check or change the playing levels at any time during a game, but not whilst the computer is calculating. If you wish you can interrupt the computing time and call-off a computer move instantly by pressing the GO key. This will be the best possible move the computer has calculated up to that moment.

If you switch the computer off to continue your game at a later time, or press the NEW GAME key, the previous playing level will be retained provided you have batteries in your computer or it is connected to the adaptor.

THE 128 LEVEL SETTINGS AND THEIR CHARACTERISTICS ARE SHOWN BELOW :

- **White Level Group (WA1 - WD8)**
for FIXED TIME LEVEL SETTING:

There is a fixed computing time per move. The computer will always respond in exactly the specified amount of time, unless there is only one legal move, in which case it will play instantly. In the case that the computer sees it can force a checkmate it will make its move as soon as it finds the mating sequence.

<u>Level</u>	<u>Time</u>	<u>Level</u>	<u>Time</u>
(1) WA1	2 sec.	(9) WB1	60 sec.
(2) WA2	5 sec.	(10) WB2	75 sec.
(3) WA3	10 sec.	(11) WB3	90 sec.
(4) WA4	15 sec.	(12) WB4	120 sec.
(5) WA5	20 sec.	(13) WB5	150 sec.
(6) WA6	25 sec.	(14) WB6	180 sec.
(7) WA7	30 sec.	(15) WB7	210 sec.
(8) WA8	45 sec.	(16) WB8	240 sec.
(17) WC1	5 min.	(25) WD1	30 min.
(18) WC2	6 min.	(26) WD2	40 min.
(19) WC3	7 min.	(27) WD3	50 min.
(20) WC4	8 min.	(28) WD4	1 hour
(21) WC5	9 min.	(29) WD5	2 hours
(22) WC6	10 min.	(30) WD6	4 hours
(23) WC7	15 min.	(31) WD7	6 hours
(24) WC8	20 min.	(32) WD8	8 hours

- **White Level Group (WE1 – WH8)**
for AVERAGE TIME LEVEL SETTING:

The computer will take an average of the specified amount of time per move. If it has only one legal move it will respond instantly.

Note: These times are average times over a large number of moves. In the opening and endgame the computer tends to play faster, but in complicated middle game positions it may take longer to move.

<u>Level</u>	<u>Time</u>	<u>Level</u>	<u>Time</u>
(33) WE1	2 sec.	(41) WF1	60 sec.
(34) WE2	5 sec.	(42) WF2	75 sec.
(35) WE3	10 sec.	(43) WF3	90 sec.
(36) WE4	15 sec.	(44) WF4	120 sec.
(37) WE5	20 sec.	(45) WF5	150 sec.
(38) WE6	25 sec.	(46) WF6	180 sec.
(39) WE7	30 sec.	(47) WF7	210 sec.
(40) WE8	45 sec.	(48) WF8	240 sec.
(49) WG1	5 min.	(57) WH1	30 min.
(50) WG2	6 min.	(58) WH2	40 min.
(51) WG3	7 min.	(59) WH3	50 min.
(52) WG4	8 min.	(60) WH4	1 hour
(53) WG5	9 min.	(61) WH5	2 hours
(54) WG6	10 min.	(62) WH6	4 hours
(55) WG7	15 min.	(63) WH7	6 hours
(56) WG8	20 min.	(64) WH8	8 hours

- **Black Level Group (BA1 - BD8)**
for EASY LEVEL SETTING:

The Easy levels are especially for novice players. On these levels the computer restricts its search. It deliberately plays weaker, like a human beginner, for whom the computer's depth search is limited to various ply searches with different specified capture depth searches.

<u>Level</u>	<u>Search per move</u>
(65) BA1	1 ply search + 1 ply capture
(66) BA2	1 ply search + 2 ply capture
(67) BA3	1 ply search + 3 ply capture
(68) BA4	1 ply search + 4 ply capture
(69) BA5	1 ply search + 5 ply capture
(70) BA6	1 ply search + 6 ply capture
(71) BA7	1 ply search + 7 ply capture
(72) BA8	1 ply search + 8 ply capture
(73) BB1	2 ply search + 1 ply capture
(74) BB2	2 ply search + 2 ply capture
(75) BB3	2 ply search + 3 ply capture
(76) BB4	2 ply search + 4 ply capture
(77) BB5	2 ply search + 5 ply capture
(78) BB6	2 ply search + 6 ply capture

(79) BB7	2 ply search + 7 ply capture
(80) BB8	2 ply search + 8 ply capture
(81) BC1	3 ply search + 1 ply capture
(82) BC2	3 ply search + 2 ply capture
(83) BC3	3 ply search + 3 ply capture
(84) BC4	3 ply search + 4 ply capture
(85) BC5	3 ply search + 5 ply capture
(86) BC6	3 ply search + 6 ply capture
(87) BC7	3 ply search + 7 ply capture
(88) BC8	3 ply search + 8 ply capture
(89) BD1	4 ply search + 1 ply capture
(90) BD2	4 ply search + 2 ply capture
(91) BD3	4 ply search + 3 ply capture
(92) BD4	4 ply search + 4 ply capture
(93) BD5	4 ply search + 5 ply capture
(94) BD6	4 ply search + 6 ply capture
(95) BD7	4 ply search + 7 ply capture
(96) BD8	4 ply search + 8 ply capture

• **Black Level Group (BE1 - BF5)**
for FIXED DEPTH LEVEL SETTING:

These levels have fixed computing depth, there is no time limit and the computer will go on calculating up to the depth selected. These levels are important for analysis purpose.

Level		Search per halfmove	Level		Search per halfmove
(97)	BE1	1 ply	(105)	BF1	9 ply
(98)	BE2	2 ply	(106)	BF2	10 ply
(99)	BE3	3 ply	(107)	BF3	11 ply
(100)	BE4	4 ply	(108)	BF4	12 ply
(101)	BE5	5 ply	(109)	BF5	infinite
(102)	BE6	6 ply			
(103)	BE7	7 ply			
(104)	BE8	8 ply			

LEVEL BF5 is an **Infinite Level**; the computer will normally go on thinking until you press the GO key.

It will only show a move unless:

- it has a "book" move available,
- it runs out of memory for its analysis of the position or
- it completes the analysis by finding a forced mate.

• **Black Level Group (BF6 - BF8)**

for EQUAL RESPONSE TIME LEVEL SETTING:

On these level settings the computer simulates your response time. You will find this very interesting especially if you wish to play a quick game.

<u>Level</u>	<u>Max Time</u>
(110) BF6	30 sec.
(111) BF7	1 min
(112) BF8	2 min

On Equal Response Time Levels the computer tries to use more or less the same time to calculate its counter move as you have used to play your previous move. However if you use more time than specified under the above listed playing levels the computer will use the maximum time of the selected level setting to calculate its next move.

• **Black Level Group (BG1 - BG8)**

for EXTENDED FIXED DEPTH LEVEL SETTING:

On these levels the computer will always respond with its counter move when the selected depth search is reached during the middle game. At the end game play the computer will calculate 2 ply deeper then during the middle game play.

<u>Level</u>	<u>Search per halfmove at middle game</u>	<u>Search per halfmove at end game</u>
(113) BG1	1 ply	3 ply
(114) BG2	2 ply	4 ply
(115) BG3	3 ply	5 ply
(116) BG4	4 ply	6 ply
(117) BG5	5 ply	7 ply
(118) BG6	6 ply	8 ply
(119) BG7	7 ply	9 ply
(120) BG8	8 ply	10 ply

- **Black Level Group (BH1 - BH6)**
for SOLVE MATE LEVEL SETTING:

Your NOVAG Chess Computer can solve most chess problems as well as mate problems up to Mate-in-6.

<u>Level</u>	<u>Problem</u>
(121) BH1	Mate in 1
(122) BH2	Mate in 2
(123) BH3	Mate in 3
(124) BH4	Mate in 4
(125) BH5	Mate in 5
(126) BH6	Mate in 6

Press the NEW GAME key and set up the required board position (see section 12.). Before you start with the mate search, it is advisable to verify the set up board position via the VERIFY function and make sure that the color to move is correct. If not change this by pressing the COLOR key. Set now one of the Solve Mate Levels as described above.

Press the GO key once to exit the setting up of the mate search and then press the GO key a second time and the computer begins with the mate search.

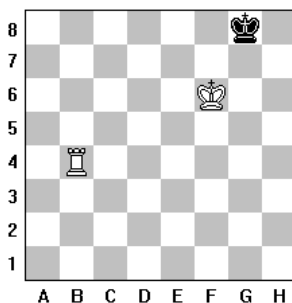
Mates-in-1 to Mates-in-3 are usually found quickly, whereas Mates-in-4 to Mates-in-6 require quite a long time.

If there is a solution the computer will show you the moves to execute. If there is no solution the ERROR LED will light up.

If you wish to continue the game select another level and enter your next move.

EXAMPLE:

If you wish to solve a Mate-in 2 problem, place the 3 pieces on your chess board as shown on the diagram.



Proceed now as follows and press:

- NEW GAME key
- SET LEVEL key → set the display to “LE H2 with black bar”
- GO key
- SET UP key → set the display to “Set -- with the white bar”
- CLEAR key
- KING piece symbol key → press square F6
- ROOK piece symbol key → press square B4
- COLOR key → set the display to “Set -- with the black bar”
- KING piece symbol key → press square G8
- COLOR key → it is White to move
- GO key : to confirm the above setting
- GO key: to start the mate search

The Chess Computer will answer with the first halfmove:

1. B4-H4. The Black King can only move G8-F8; please execute this move.

The Chess Computer will make its counter-move with 2. H4-H8. MATE!

- **Black Level Group (BH7) = Level 127**
for RANDOM LEVEL SETTING:

On Random Level the computer selects a random time between 1 – 64 seconds inclusive. The average time will be about 30 seconds per move.

- **Black Level Group (BH8) = Level 128**
for REFEREE LEVEL SETTING:

On this level the player can enter moves for Black and White. The computer will not calculate any moves but will check the legality of all moves entered. This level may be used to enter particular book openings or to allow 2 players to challenge each other.

The display will show "LE rEF".

Apart from being able to enter moves for both sides, the following functions can still be used: TAKE BACK, CHANGE COLOR, HINT, SET UP, VERIFY, SOUND ON/OFF.

7. MAIN FUNCTIONS OF THE GO KEY

The GO key is used to enter a command or to exit from a special function. These functions are explained in their respective paragraphs.

The main functions of the GO key:

- To make the Chess Computer calculate for the side to move.
- To terminate the move search (only while the Chess Computer is computing) and call-off a computer move it currently considers the best. Please allow the computer at least 5 seconds of search time before pressing this key so that it has time to compute a reasonable move. The evaluation of these moves does not correspond with the evaluation of the Set-Up level.
- To let the computer play against itself which might be of special interest at a certain point of the game or for learning purposes. Every time you press the GO key the computer calculates for the side to move. All moves will be computed according to the set playing level. Please do not forget to update the board position by moving the pieces without applying pressure.
- To exit from the SET UP mode.
- To exit from the VERIFY mode.
- To exit from the LEVEL mode.
- To accept a HINT. If a hint is shown on display you can press the GO key to accept the hint as though keyed in.
- To start the SOLVE MATE search.

8. CHOICE OF COLOR FOR NEW GAME (Color Key)

The computer is generally set to play Black and you White. If you want to play Black in a new game, set up the Black pieces on rank 1 and 2, and the White ones on rank 7 and 8. In that case disregard the notations along the chess board and follow the indications shown by the rank and file LEDs.

Now Press:

NEW GAME - COLOR - GO. The computer will make its opening move for White from the top of the chessboard, while you have your Black pieces in front of you.

9. CHANGE OF COLOR (Color Key)

The COLOR key can be pressed at any time during a game and the color to move will be reversed. Any moves made prior to pressing this key will be erased and the game history will begin with this position.

You can also change sides during the game by simply pressing the GO key.

This operation may be performed any number of times during a game, but not whilst the computer is calculating.

In Verify / Set Up mode you can choose with the COLOR key the required color.

10. TAKE BACK A MOVE (Take Back Key)

The NOVAG Chess Computer offers the possibility to take back 25 halfmoves to enable you to rectify your last move.

Wait until you have executed the computer's reply move. Press TAKE BACK and the rank and file LEDs will show the computer's last move in reverse, e.g. first the "**to**" square and then the "**from**" square (this move will also be shown on the LCD display). Execute this move just as any ordinary one, i.e. applying pressure on both squares.

Press TAKE BACK again and the rank and file LEDs will now show your last move in reverse. Proceed as explained above.

The square position of a captured piece will be indicated by the rank and file LEDs of this square and the piece type and square is also shown on the LCD display. Simply reinstate the captured piece by applying pressure onto this square. You may then continue to take back moves if so desired.

If no moves are in the game history the LCD will show "Error".

Note: If you select the COLOR or SET UP function to alter the position of any of the pieces, all prior moves will be deleted and you may not TAKE BACK moves before the change of COLOR or position.

11. VERIFYING A POSITION (Ver / Set Key = Verify / Set Up Key)

Any time before entering your next move or after setting up a board position you can check the position of any number of pieces to see if the board position corresponds to the position stored in the computer memory.

To enter this mode, wait until it is your turn to move and proceed as follows:

- a) • Press Ver/Set key once, so that "Ver" comes on display and the VERIFY LED lights up.
 - If necessary change the color of the piece(s) to be verified by pressing the COLOR key.
 - Choose the piece(s) to be verified via the Piece Symbol Key one after the other and as often as needed.
 - The piece symbol and its square position appear on display and the rank and file LEDs of this square will light up additionally.
 - If there are no pieces or no more pieces to be verified on the board the message "Ver —" will be displayed.

OR

- b) • Press each piece on its square and check the information on the LCD display:
The piece symbol, Black/White color symbol and the square position is shown. If the square should be empty, you only see the square position but not the piece symbol on display.
- To end this mode at any time simply press the GO key. You can now enter your next move or call-off a move for the computer.

12. SETTING UP A POSITION

(Ver/Set Key = Verify/Set Up Key)

This mode is designed to enable you to set up board positions to solve chess problems or to set handicaps by removing or entering a piece, as well as changing the positions of pieces. In SET UP mode the computer's legality check as to the movement of pieces is disabled and you can enter, remove or change positions of any piece. However you cannot set up incorrect positions, e.g. play without both Kings or with more than one King for each color....etc.
If the position is illegal, the word "Error" comes on display.

The computer will accept and execute castlings, pawn promotions and en passant captures if you play from a set up board position.

Note: All previously stored moves are canceled as soon as you enter the SET UP mode.

12.A *Removing a Piece*

If you wish to remove one or more pieces proceed as follows:

- Press Ver / Set key **twice**, so that "Set" comes on display and the SET UP LED lights up.
- Remove the piece(s) one by one by applying gentle pressure on the square it stands on. The Piece Symbol and the position of each square appear on display.
- To end this mode press GO.
- If necessary change color via the COLOR key, then enter your next move or call-off a computer move.

12.B. *Entering a Piece*

If you wish to enter one or more pieces proceed as follows:

- Press the Ver / Set key **twice**, so that "Set" comes on display and the SET UP LED lights up.
- You can change the color of the piece(s) to be entered with the COLOR key.
- Select the piece to be entered via the Piece Symbol Key and the respective Piece Symbol comes on display.
- Enter the piece by gently pressing it on the desired square and the respective rank and file LEDs light up.

- Subsequent pieces of the same kind and same color can be entered without using any further function keys.
- Only change color or use the Piece Symbol Key if the piece varies from the preceding piece.
- To end this mode press the GO key.

12.C. Moving a Piece to another Square

If you wish to change the position of one or more pieces whilst the game is in progress proceed as follows:

- Press the Ver/Set key **twice**, so that "Set" comes on display and the SET UP LED lights up.
- Move the piece(s) by pressing on the "**from**" and "**to**" square as in a normal move (the piece symbol and square position is shown on the LCD display).
- To end this procedure press the GO key.

13. CLEARING THE ENTIRE BOARD (Clear Key)

If you want to set up a board position it is best to clear the entire chessboard before entering the desired position. First remove all pieces from the board and set up your new position without pressing down on any square; then enter this position as follows:

- Press the Ver/Set key **twice**.
- Now press CLEAR key to cancel all pieces from the computer's memory (on the LCD display "Set" will appear).
- Now enter your position piece by piece into the computer as described under section 12B.
- To end this mode press the GO key.
- The color to move can be changed via the COLOR key.

Note: Use the Verify mode to check that you have entered the position correctly.

14. MOVE SUGGESTION (Hint Key)

The computer can suggest moves if you are not sure how to continue your game, which is a great tutoring feature.

When it is your turn to move press the HINT key and the computer will show the move it considers the best for the color to move. You can accept any suggested move or may make a move of your own choice. If you accept the suggested move (shown on the chessboard by the blinking rank and file LEDs and on the LCD display) press the GO key and the computer will then start calculating its counter move. If you decide to make a move of your own choice ignore the suggested hint and execute your move accordingly.

If you don't like the first HINT suggested by the computer press the HINT key again and the computer may suggest another move.

Showing how the computer is calculating:

Pressing the HINT key whilst the computer is calculating its counter move will show you (by the rank and file LEDs and on the LCD display) the current best possible move it is considering.

Note: The suggested move is the best possible move in this position calculated by your NOVAG Chess Computer at the level preset by you.

15. TRAINING FUNCTION (Training Key)

This function is to help the novice player.

- When it is your turn to move press the TRAINING key and the blinking LEDs (the square position is also shown on display) will show the "**from**" and "**to**" squares of the first piece with a legal move.
If you continue to press the TRAINING key the computer will show you the next possible move of that particular piece.
- The computer will terminate the TRAINING function once you have cycled through the last chess piece by pressing the TRAINING key (the display shows "-- --").
- If you like to make the suggested move indicated by the blinking LEDs press the GO key and the NOVAG Chess Computer will make its counter move.
- If you wish to make any other move, execute the move of your choice by gently pressing onto the "**from**" and "**to**" square and the computer will reply accordingly.
- In order to cycle faster through the TRAINING function, you can press the LEVEL key and this will show you the "**from**" and "**to**" square of the next chess piece with a legal move.
- Please note that once you have cycled through the TRAINING function by using the LEVEL key the VERIFY/SET UP/BLACK and WHITE LEDs will light up as well as the rank and file LEDs indicating the previous set level.
- Press the GO key to exit this function and enter now your next move for White or call-off a computer move by pressing again the GO key.

16 ACOUSTIC SIGNALS (Sound Key)

The acoustic signals and beeps can be switched ON and OFF with the SOUND key. The LCD display shows "Sound ≡" to indicate that all acoustic signals are switched ON.

WARRANTY

For details please refer to the enclosed Warranty Card.

CARE OF YOUR NOVAG Chess Computer

Dirt or dust can be removed with a soft cloth. Do not use chemical solvents or water on the set. Any damage caused by their use invalidates the warranty. Always keep the computer in a dry and cool place (normal room temperature). Avoid exposing the computer to heat, e.g. spot lights, radiators, sunshine, etc. as this may lead to permanent damage caused by overheating, which is not covered by the warranty.

RESET SWITCH

If you cannot get your computer to work, check first the power supply carefully or use the Reset Switch on the underside of the Chess Computer to erase the entire computer Memory. Turn the computer upside down. Locate the hole marked 'ACL' and use a pointed instrument (e.g. ballpen) to poke into this hole. Hold it for 3 seconds. The Memory has now been reset and you may continue normally. Please use the RESET facility only in case of need.

Rules of Chess

I. General Moves

1. The two players must alternate in making one move at a time. The player with the white pieces moves first to start the game.
2. With the exception of castling (section II.1.), a move is the transfer of a piece from one square to another square which is either vacant or occupied by an enemy piece.
3. No piece, except the Rook when castling and the Knight (section II.5) may cross a square occupied by another piece.
4. A piece moved to a square occupied by an enemy piece captures it as part of the same move. The captured piece must be immediately removed from the chessboard by the player making the capture.
5. When one player moves a piece into a position whereby he can attack the King, the King is in "Check" (announced by the CHECK LED and on the LCD display) and must either
 - a) move the King,
 - b) block the path of the attacking piece with another piece,
 - c) or attack the attacking piece.
6. The game is over when there is no escape for the King from an attacking piece. This is known as "Checkmate" (the CHECK and MATE LED and on the LCD display).

II. Individual Moves

1. KING

Except when castling, the King can move only one space to any adjoining square (including diagonally) which cannot be attacked by an enemy piece.

Castling is a move of both the King and either Rook which counts as a single move (of the King) and is executed as follows:

- a) The King is moved from its original square two squares toward either Rook on the same rank, and
- b) The Rook is moved to the opposite side of the King.

Castling cannot occur if:

- a) the King has already been moved.
- b) the Rook has already been moved.
- c) the King's original square or the square which the King must cross or the one which it is to occupy is attacked by an enemy piece.
- d) there is any piece between the King and the Rook.

2. QUEEN

The Queen can move to any square along the same rank, file or diagonal on which it stands (except as limited by Article I.3).

3. ROOK

The Rook can move to any square along the same rank or file on which it stands (except as limited by Article I.3).

4. BISHOP

The Bishop can move to any square along the same diagonal on which it stands (except as limited by Article 1.3).

5. KNIGHT

The Knight's move is in the shape of an "L", moving two squares horizontally vertically, and then one square at 90° angle from the first move. These two moves can be reversed (one square and then two) if desired.

6. PAWN

The Pawn can move either one or two squares forward on its original move, and then one square forward at any time afterward. When capturing, it advances one square diagonally (forward). When a Pawn reaches the last rank, it must be immediately exchanged for a Queen, Rook, Bishop, or a Knight of the same color as the Pawn, at the player's choice and without taking into account the other pieces still remaining on the chessboard. This exchange is called a "promotion".

A Pawn can attack a square crossed by an enemy Pawn which has been advanced two squares in one move from its original square as though the latter had been moved only one square. This capture may be made only on the move immediately following such an advance and is called capturing "en passant". (When your computer makes an en passant capture it will display the symbol "ep".) The en passant moves is also described under section 4.b in this instruction.

III. HINTS & TIPS

Get a feel for the values of different pieces, which will be useful when making decisions on captures and exchanges. In general, try to capture the more valuable pieces. Some important principles:

- Castle your King into safety as soon as possible.
- If you control the center squares, this will give you the advantage. To do this, move your center pawns and develop your Bishops and Knights early in the game.
- Take advantage of capture situations, particularly if you will gain material.
- Concentrate – don't be caught off guard by your opponent!

This chess computer has been manufactured under the traditionally high quality and safety standards of Perfect Technology Ltd. and complies with the European standard which is guaranteed by the importer whose name is marked on the enclosed warranty card. Not suitable for children under 36 months due to inclusion of small parts.

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