

**NOVAG<sup>®</sup>**  
*AGATE*

**INSTRUCTION**

# TABLE OF CONTENTS

## GENERAL HINTS

1. Short Instructions
2. Impossible and Illegal Moves
3. Capturing a Piece
4. Game Features:
  - a) Castling
  - b) En Passant Captures
  - c) Pawn Promotion / Underpromotion
  - d) Stalemate / Draw
  - e) Check and Checkmate

## SPECIAL FUNCTIONS

5. NEW GAME (New Game Key)
6. SETTING THE SKILL LEVEL (Level Key)
7. TAKE BACK A MOVE (Take Back Key)
8. CHOICE OF COLOR (Go Key)
9. CHANGE OF COLOR (Color Key)
10. THE COMPUTER PLAYS AGAINST ITSELF (Go Key)
11. MAIN FUNCTIONS OF THE GO KEY
12. VERIFYING A POSITION (Ver/ Set Key)
13. SETTING UP A POSITION (Ver / Set Key)
  - A. Removing a piece
  - B. Entering a piece
  - C. Moving a piece to another square
  
14. CLEARING THE ENTIRE BOARD (Clear Key)
15. MOVE SUGGESTION (Hint Key)
16. TRAINING FUNCTION (Training Key)
17. ACOUSTIC SIGNALS (Sound Key)
18. CHESS PROBLEMS

## WARRANTY

## CARE OF THE NOVAG AGATE

## TECHNICAL INFORMATION

## RULES OF CHESS

## **GENERAL HINTS**

Your NOVAG AGATE 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 AGATE runs on 6 x 1.5V UM3-type (or "AA" size) 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. Before using the adaptor, check that the voltage of your electric mains is within the range specified on the adaptor label.

**Note:** 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. You may only use the adaptor which has been specially developed for this computer.

### **MEMORY:**

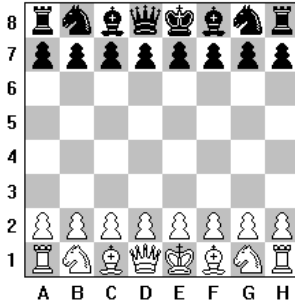
The NOVAG AGATE has a long term memory and will retain the last board position. However, make sure that there are batteries in the NOVAG AGATE or an adaptor is connected otherwise you will lose the memory contents.

**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 "LE 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 AGATE 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 AGATE 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 AGATE 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**

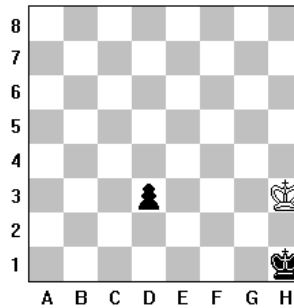
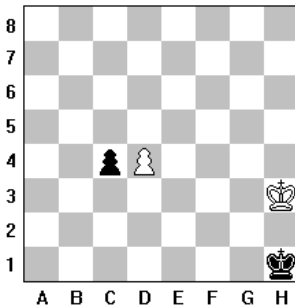
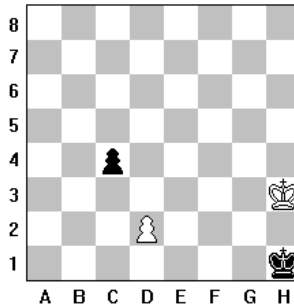
The computer displays Castling with the King's and the Rook's move. When Castling press first the 2 squares for the King and then move the Rook by applying pressure on the appropriate squares indicated by the lit up LEDs. Do the same when executing a Castling move for yourself.

**Note:** You may not castle while your King is in check, nor may you castle through check.

The NOVAG AGATE 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 AGATE 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 AGATE has 64 skill levels. 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.

For example, if you wish to set level 12 (= Fixed Time Level B4), press square B4 and again this will be indicated by the corresponding rank and file LEDs and you will see "LE b4" displayed. (Please see board 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
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>

**Note:** Whilst setting the skill level the Black, White, VERIFY and SET UP LEDs will also be turned on.

You may check or change the skill level at any time during a game, but not whilst the computer is calculating. You cannot interrupt the computer while it is calculating but must wait for it to make a move.

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

## **THE 64 LEVELS AND THEIR CHARACTERISTICS ARE SHOWN BELOW :**

### **Fixed Time Level (A1 - B8) :**

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.

<b>Level</b>	<b>Time</b>	<b>Level</b>	<b>Time</b>
(1) A1	2 sec.	(9) B1	60 sec.
(2) A2	5 sec.	(10) B2	75 sec.
(3) A3	10 sec.	(11) B3	90 sec.
(4) A4	15 sec.	(12) B4	120 sec.
(5) A5	20 sec.	(13) B5	150 sec.
(6) A6	25 sec.	(14) B6	180 sec.
(7) A7	30 sec.	(15) B7	210 sec.
(8) A8	45 sec.	(16) B8	240 sec.

### **Average Time Level (C1 - D8) :**

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 middlegame positions, it may take longer to move.

<b>Level</b>	<b>Time</b>	<b>Level</b>	<b>Time</b>
(17) C1	2 sec.	(25) D1	60 sec.
(18) C2	5 sec.	(26) D2	75 sec.
(19) C3	10 sec.	(27) D3	90 sec.
(20) C4	15 sec.	(28) D4	120 sec.
(21) C5	20 sec.	(29) D5	150 sec.
(22) C6	25 sec.	(30) D6	180 sec.
(23) C7	30 sec.	(31) D7	210 sec.
(24) C8	45 sec.	(32) D8	240 sec.

### **Fixed Depth Level (E1 - F5) :**

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.

<b>Level</b>	<b>Search per halfmove</b>	<b>Level</b>	<b>Search per halfmove</b>
(33) E1	1 ply	(41) F1	9 ply
(34) E2	2 ply	(42) F2	10 ply
(35) E3	3 ply	(43) F3	11 ply
(36) E4	4 ply	(44) F4	12 ply
(37) E5	5 ply	(45) F5	infinite
(38) E6	6 ply		
(39) E7	7 ply		
(40) E8	8 ply		

**Level F5** 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.

### **Easy Level (G1-G8, F6 - F8) :**

The Easy levels are especially for beginners. 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 1 ply search with various specified capture depth searches.

<b>Level</b>	<b>Search per move</b>
(46) G1	1 ply search + 1 ply capture
(47) G2	1 ply search + 2 ply capture
(48) G3	1 ply search + 3 ply capture
(49) G4	1 ply search + 4 ply capture
(50) G5	1 ply search + 5 ply capture
(51) G6	1 ply search + 6 ply capture
(52) G7	1 ply search + 7 ply capture
(53) G8	1 ply search + 8 ply capture
(54) F6	2 ply search + 2 ply capture
(55) F7	2 ply search + 3 ply capture
(56) F8	2 ply search + 4 ply capture

### **Solve Mate Level (H1 - H6) :**

Your NOVAG AGATE can solve most chess problems as well as mate problems up to Mate-in-6. Press NEW GAME 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 Problem Solving Levels as described above.

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

<b>Level</b>	<b>Problem</b>
(57) H1	Mate in 1
(58) H2	Mate in 2
(59) H3	Mate in 3
(60) H4	Mate in 4
(61) H5	Mate in 5
(62) H6	Mate in 6

### **Random Level (H7) = Level 63**

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

## **Referee Level (H8) = Level 64**

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.

When this level is set, it will be displayed by the word "LE rEF".

Apart from being able to enter moves for both sides, the following features are available : TAKE BACK, CHANGE COLOR, HINT, SET UP, VERIFY, SOUND ON/OFF.

### **7. TAKE BACK A MOVE (Take Back Key)**

The NOVAG AGATE 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.

## **8. CHANGING SIDE (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. THE COMPUTER PLAYS AGAINST ITSELF (Go Key)**

It may be of special interest at a certain point during a game, or for learning purposes to watch the computer play against itself. Just call off a computer move for your color by pressing GO instead of entering a move. The computer will compute all moves based on the skill level it is set at. Repeated use of the GO key makes your NOVAG AGATE play against itself.

## **11. 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 AGATE calculate for the side to move.
- To terminate the move search (only while the AGATE is computing) and call-off a computer move it currently considers the best. Please allow the AGATE 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 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, pressing the GO key accepts the hint as though keyed in.
- To start the SOLVE MATE search.

## **12. 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.

## 13. 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.

### *13.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.

### *13.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.

### ***13.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.

## **14. 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 13B.
- 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.

## **15. 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 while 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 AGATE at the level preset by you.

## **16. 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 AGATE 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.

## 17. 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.

## 18. CHESS PROBLEMS

On Level H1-H6, your NOVAG AGATE can solve most chess problems as well as mate problems up to Mate-in-6. Press NEW GAME and set up the required board position (see section 13.). 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 Problem Solving Levels as described before.

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

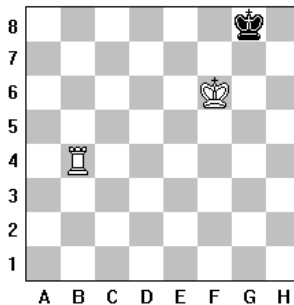
Mates-in-1 to Mates-in-3 are usually found quickly, whereas Mates-in-4 to Mates-in-6 require quite a long time.

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 chessboard as shown on the diagram.



Proceed now as follows and press:

- NEW GAME
- LEVEL key → press square H2
- GO key
- VERIFY/SET UP key **twice**
- CLEAR key
- King piece symbol → enter square F6
- Rook piece symbol → enter square B4
- COLOR key
- King piece symbol → enter square G8
- COLOR key, it is White to move
- GO key : to exit the above setting
- GO key : to start the mate search

The NOVAG AGATE will answer with the first halfmove: 1. B4-H4. The Black King can only move G8-F8; please execute this move.

The NOVAG AGATE will make then its counter move with 2. H4-H8 MATE!

### **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 AGATE 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.

### **WARRANTY**

For details please refer to the enclosed Warranty Card.

### **CARE OF YOUR NOVAG AGATE**

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.

## 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.
- Move entry via Sensor chessboard
- Move indication via Rank and File LEDs and LCD display
- Extra Error LED
- Elegant board 273 x 300 x 27 mm
- Levels 64
- Solve mate in 6
- Opening book size 8500 moves
- Take Back function 25 half moves
- Set Up and Verify function
- Hint and Training function

All data subject to change without notice.

## 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 I.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 move 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 Novag Industries 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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