



NOVAG®
AQUAMARINE
PREMIER

INSTRUCTION

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1. GENERAL HINTS

Playing with this NOVAG chess computer is very simple. However we recommend reading the instruction before starting to play.

The NOVAG AQUAMARINE PREMIER runs on 6 x 1,5V UM 3-type (or AA) **alkaline** batteries, which allow about 1000 hours of play. Do not use ordinary batteries as they will result in irregular performance. To insert the batteries, open the BATTERY DOOR on the underside of the unit and place the batteries as indicated by the +/- signs.

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.

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. We suggest to only use the adaptor which has been specially developed for this computer.

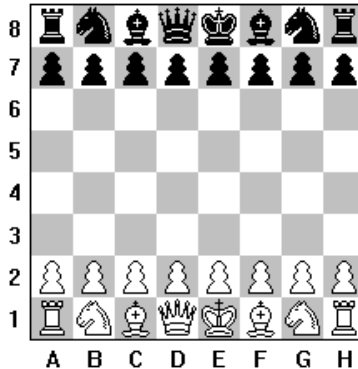
2. NOTES

Symbols:	Explanation:
H	King
q	Queen
r	Rook
b	Bishop
n	Knight
P	Pawn
x	Capture
ep	Capture en Passant
=	Draw
+	Check
♠	Checkmate
♞ ♞ ♞	White move indication
♟ ♟ ♟	Black move indication
♞ ♞ ♞ ♞	Error indication

3. GETTING STARTED

Set up the chess pieces on the board with yourself playing White. The White pieces should be placed on the 1st and 2nd rows and the Black pieces on the 7th and 8th rows. (see Board Setup). Press the ON/OFF key to turn on your NOVAG chess computer and the LCD should display " ♖ ♖ ♖ ♖ ", which means you are ready to play and it is White's turn. If the display is not showing this, press NEW GAME and it should appear. The computer is now waiting for you to make a move, should you choose to play the White pieces. If you prefer Black, press ENTER and the computer makes a move for White (probably something like "d2 d4").

Board Setup: The White pieces should be on the 1st and 2nd rows and the Black pieces on the 7th and 8th rows.



4. NOTATIONS

The moves of your NOVAG AQUAMARINE PREMIER are indicated in standard algebraic notation. The columns (known as files) are labeled **A, B, C....., to H**. The rows (known as ranks) are labeled **1, 2, 3....., to 8**. Each square is known by its column and its row or its file and its rank in that order.

Note: The notations in small print are only to be followed if you play Black and the computer plays White.

5. MAKING A MOVE

The NOVAG AQUAMARINE PREMIER has a SENSOR-CHESSBOARD which registers your moves automatically when the appropriate squares have been gently pressed. Moves to be executed for the AQUAMARINE PREMIER are indicated by the LCD display. Each square on the chess board is named according to standard adopted by the World Chess Federation (F.I.D.E.) which are the co-ordinates of each square from A1 to H8, all moves are also shown on the LCD.

To start, press the NEW GAME key and you automatically play White. To execute your first move e.g. e2-e4, gently press down the white pawn on square e2 and set it on the square e4 by pressing it down again. Each time the LCD displays your move to show you that the computer has registered your entry. The AQUAMARINE PREMIER starts then immediately to calculate its counter-move (whilst the computer is calculating its move, you will see on the LCD that the black move indication " ♚ ♚ " is flashing).

When the computer has found its move the "from" and "to" squares will be displayed on the LCD. The "from" square is flashing to clearly indicate which piece the computer wants you to move. Simply press this piece gently on the "from" square and place it on the "to" square by also pressing it. Each pressing on a square is accompanied by 1 beep unless switched off. (see section 16)

Impossible and Illegal moves:

The NOVAG AQUAMARINE PREMIER is programmed in accordance with the International Chess Rules and does not accept nor make illegal moves. If you enter an illegal move you will see this display " ♚ ♚ ♚ ♚ ". Simply re-enter your move correctly.

If you started wrongly and wish to cancel your move, simply press the CLEAR key to clear the display. You may then enter your move again. If you accidentally enter a move other than the move you intended the computer will immediately start to compute its reply. Wait for the computer to reply and then use the TAKE BACK facility (see section 11). You may now enter your move again.

Capturing a piece:

If the computer indicates a move onto a square that is occupied by the opponent's piece, this means that the piece is captured and must be removed from the board.

Simply take it off **without applying pressure**. If you wish to make a capture remove the captured piece and make your move as usual.
If the computer makes a capturing move it will show on the LCD the symbol "x".

Example:

D5 x D4 means that the piece on square D5 captures the piece on square D4.

6. GAME FEATURES

The NOVAG AQUAMARINE PREMIER understands all the chess rules and will execute them correctly. Please refer to chess literature for the full explanation of these chess terms.

a) Castling

According to the chess rules, when castling, first move the King and then the Rook.

Both pieces are moved by pressing them down gently like in any other move.

The computer will indicate the squares that you need to press.

Example:

Castling kingside for White E1G1.

Please gently press on square E1 and G1 with the King and move the Rook from square H1 to square F1 as indicated also by applying pressure.

Note: You may not castle your King into check, out of check or through check.

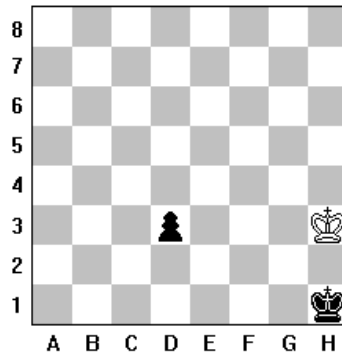
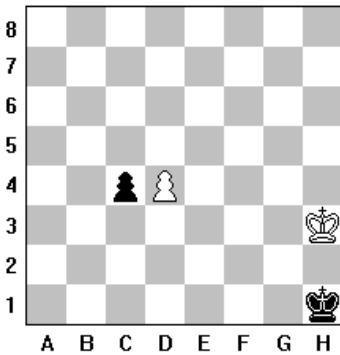
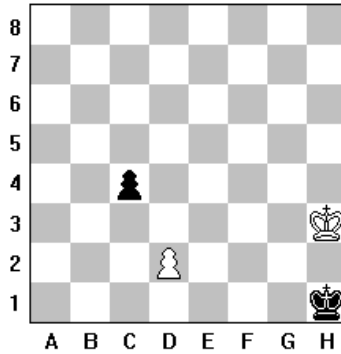
The NOVAG AQUAMARINE PREMIER accepts and executes castling in set-up board positions.

b) En Passant

If you or the computer make an en passant capture, do not forget to remove the captured pawn. When the computer makes an en passant capture it will show the symbol "ep". You or the computer may capture en-passant in set-up board positions.

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 Promotion / - Underpromotion

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 following signs "♠ ♡ c 8" will be shown on the LCD display. (c8 in this case stands for the square to which your Pawn has advanced). You can now choose the piece you wish to promote/underpromote to by pressing the respective **piece symbol key**. The computer will then start computing its counter-move.

If the computer Pawn reaches the opposite side of the board it would always promote its Pawn to a Queen. To verify the computer's promotion, please use the VERIFY function any time you wish (see section 14).

d) Check / Mate / Stalemate

- When the computer puts your King in check, you will see the symbol "+" on the display.
- Checkmate is indicated by the symbol "♚" at the end of the game.
- If your computer cannot make a legal move the result will be a stalemate draw and you will see the symbol "=" on the display.

SPECIAL FUNCTIONS

7. NEW GAME (New Game Key)

Press NEW GAME every time you switch the computer on or whenever you want to commence a new game. The previous game is cancelled and in the computer memory all pieces are now in the opening position and the display will show "LL LL".

8. ENTER FUNCTION (GO Key)

The GO key is generally used to enter a command (Level, Verify/Set Up function) or to exit from a function:

Furthermore it is used:

- To interrupt the computing time and call-off a computer move instantly. The computer will make the best possible move up to that moment.
- To change sides during the game, wait until it is your turn to move, then press GO. The computer will now compute a move for your colour, while you play the other colour from now on.
- 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 skill level.

Please don't forget to update the board position by moving the pieces without applying pressure.

- To change sides at the beginning of the game. Press NEW GAME and GO and the computer will play with the White pieces.

9. SETTING THE SKILL LEVEL (Set Level Key)

Your NOVAG chess computer has **56 playing levels** plus **7 Solve Mate Levels**. To set the computer to any of these playing levels, press first the key marked LEVEL and then any square corresponding to the desired level (square A1, A2, A3 up to H7). You will see the current level setting on the LCD display. To exit the level setting mode press the GO key within 3 seconds or if you wait longer, the computer will adjust itself and you may continue with your game.

If you want to change the level of skill during a game, use the above procedure when it is your turn to move.

Example:

If you wish to set the playing Level to "L - C3", press the SET LEVEL key and the square C3, the LCD display will show "L - C3". Once you have set the desired skill level press GO to exit this mode.

If you want to check which level the computer is set to press SET LEVEL and the display will indicate the current skill level. Press GO to exit the level setting mode without altering the level and the display will indicate which side is to make the next move.

Note: If you switch the computer off to continue your game at a later time or if you start a new game, the previous set skill level will be retained.

The 63 levels and their characteristics are shown below:

- **Fixed Time Levels**

<u>Level</u>	<u>Time per move</u>	<u>Level</u>	<u>Time per move</u>
L - A1	2 sec.	L - B1	60 sec.
L - A2	3 sec.	L - B2	90 sec.
L - A3	5 sec.	L - B3	120 sec.
L - A4	10 sec.	L - B4	150 sec.
L - A5	15 sec.	L - B5	180 sec.
L - A6	20 sec.	L - B6	210 sec.
L - A7	30 sec.	L - B7	230 sec.
L - A8	45 sec.	L - B8	255 sec.

The first 16 levels are the Fixed Time Levels. When you select one of these levels, you are asking the computer to make its counter-move within the specified time limit.

- **Average Time Levels**

Level	Time per move	Level	Time per move
L - C1	4 sec.	L - D1	120 sec.
L - C2	6 sec.	L - D2	180 sec.
L - C3	10 sec.	L - D3	240 sec.
L - C4	20 sec.	L - D4	300 sec.
L - C5	30 sec.	L - D5	360 sec.
L - C6	40 sec.	L - D6	420 sec.
L - C7	60 sec.	L - D7	460 sec.
L - C8	90 sec.	L - D8	500 sec.

On Average Time Levels, the computer uses half of the specified time to search for its counter-move and continues until it finishes the current iteration.

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

- **Fixed Depth Levels**

Level	Ply	Level	Ply
L - E1	1 ply	L - F1	9 ply
L - E2	2 ply	L - F2	10 ply
L - E3	3 ply	L - F3	11 ply
L - E4	4 ply	L - F4	12 ply
L - E5	5 ply	L - F5	13 ply
L - E6	6 ply	L - F6	14 ply
L - E7	7 ply	L - F7	15 ply
L - E8	8 ply	L - F8	infinite

On Fixed Depth Levels, the computer's search depth is limited to the number of ply (halfmoves) corresponding to the current level. On these levels, especially on the

first few depth levels, the computer may overlook a capture. This results in a weaker play, giving beginners and average players a better chance to win.

On the Infinite Level, the computer will search indefinitely, until it finds a forced mate or you stop the search by pressing the GO key. If you halt the search, the computer makes the move it currently thinks is the best. You can use this level to have your Novag chess computer analyze complicated positions for hours or even days.


- **Novice Levels**

Level	Capture Depth Search
L - G1	1 ply
L - G2	2 ply
L - G3	3 ply
L - G4	4 ply
L - G5	5 ply
L - G6	6 ply
L - G7	7 ply
L - G8	8 ply

The Novice Levels are especially for beginners. On these levels, the computer plays like a human beginner for whom the computer's depth search is limited to 1 ply search with various specified Capture Depth Searches.

- **Problem Solving Levels**

Level	Problem
L - H1	Mate in 1
L - H2	Mate in 2
L - H3	Mate in 3
L - H4	Mate in 4
L - H5	Mate in 5
L - H6	Mate in 6
L - H7	Mate in 7

Your Novag chess computer can solve most chess problems as well as mate problems up to Mate-in-7. Press New Game and set up the required board position (see section 14.). 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 colour to move is correct, if not change this by pressing the COLOUR =  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.

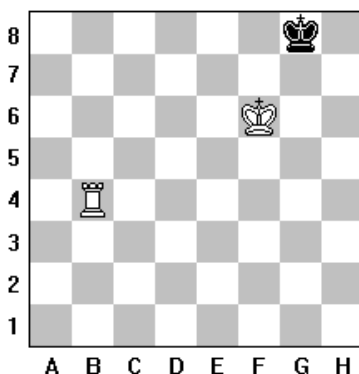
Mates-in-1 to Mates-in-4 are usually found quickly, whereas Mates-in-5 to Mates-in-7 require quite a long time.

If there is a solution, the computer will show you first the move to execute then the display will indicate the mate solution. If there is no solution, the computer will display "no nE".

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 L-H2
- GO key
- SET UP key (FP) → SET UP key (EP)
- CLEAR key → CLEAR key
- King piece symbol → enter square F6
- Rook piece symbol → enter square B4
- COLOUR key
- King piece symbol → enter square G8
- COLOUR key, it is White to move
- GO key: to clarify the above setting
- GO key: to start the mate search

AQUAMARINE PREMIER will answer with the first half move:

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

AQUAMARINE PREMIER will make its counter-move with 2. H4-H8
MATE!

10. 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 display will show the "**from**" square of the first piece with a legal move. If you continue to press the TRAINING key the computer will show you the "**from**" square of all pieces with at least one legal move. You may cycle through this step as often as you wish.
- Once you have chosen a piece (square position is shown on display) press the GO key to confirm this and then press the TRAINING key again, this time the display will show each legal square to which the piece can be moved to.
- If you wish to make the move shown on the display press GO key and your NOVAG AQUAMARINE PREMIER will make its counter-move.

If you like 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.

Note: To clear the display whilst in **TRAINING** mode press the **CLEAR** key and the display will show " L L " or " R R " .

11. 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 colour 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 display) press the **GO** key and the computer will then reply with its counter-move. If you decide to make a move of your own choice enter this move and the computer will then show its counter-move.

Note: The suggested move is the best possible move in this position calculated by the **NOVAG AQUAMARINE PREMIER** at the level preset by you.

12. TAKE BACK A MOVE (Take Back Key)

If you make a move which is legal but weak and you wish to retract it (not normally allowed in chess but your computer is also a learning aid) this is achieved as follows:

The computer will make its response to your weak move. When it has finished press the **TAKE BACK** key once to take back the computer move. This last move will be shown on the display in reverse, i.e. first the "**to**" square and then the "**from**" square. Execute this move like any other ordinary one, i.e. applying pressure on both squares as indicated.

Press **TAKE BACK** a second time to take back your weak move the same way as described above.

Every time you press **TAKE BACK** the computer will reverse the last move which is shown on the LCD display. (It will flash on display until you take back this last move).

The computer will also display any captured pieces - don't forget to update your board position accordingly!

You may now resume your game by entering a new and hopefully stronger move or ask for the computer's next move by pressing the GO key.

Use the VERIFY facility (see section 14) to verify the position in doubt.

Please note that if you use CHANGE SIDE (COLOUR KEY) or SET UP function during the game, all the prior moves will be deleted and you cannot TAKE BACK moves made before the change of colour or position.

Note: You may take back the last 32 halfmoves, this enables you to rectify an earlier mistake or to play a different strategy.

13. CHANGING SIDES (Colour 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 bold printed notations and follow the notations in small print along the chess board.

Now press: NEW GAME Key – COLOUR KEY – GO Key

The computer will make its opening move for White from the top of the board, while you have your Black pieces in front of you.

The COLOUR key can be pressed at any time during a game and the colour 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.

Note: Repeated use of the GO key makes the computer play against itself.

14. VERIFYING A POSITION (Verify Key)

To verify that your board position is correct press the "VERIFY" key **once**, the display will now show "FP --".

You are now in the **FP = FIND** mode and this enables you to ask the computer the position of any chosen piece.

- Select now the type of piece(s) to be verified by using the keys marked with the symbol of the piece.
- The colour can be changed by pressing the COLOUR key.
- You can end the verification at any time by pressing the GO key and the display will show the symbols for the colour to move.

Note: When in "VERIFY" or "SET UP" mode the following keys represent the piece type:

P	=	Pawn
n	=	Knight
b	=	Bishop
r	=	Rook
q	=	Queen
H	=	King

Example:

If you wish to find the position of the White Queen press "VERIFY" to select the FIND mode. Press the piece symbol key for Queen and if the pieces were in their initial positions you will see the display "**┌ q d 1**". The leading figure "**┌**" tells you the piece is White, the "**q**" tells you it is a Queen and the "**d1**" tells you that the White Queen is on square D1. Now press the COLOUR key for Black and you will see the display "**┐ q d8**". The leading symbol "**┐**" indicates Black and the remaining display indicates Black Queen on square D8.

Now press the pawn symbol key the display will change to "**┐ P H7**" where now the "**P**" indicates a Pawn and the whole display indicates Black Pawn on H7. Now press this key again, the display will change to "**┐ P G7**" indicating a Black Pawn on G7 and each time you press this key you will find the position of any further Black Pawn until the display changes to "**┐ P --**" indicating all Pawns displayed. Same goes for White colour.

If there are no pieces left of the type for which you are searching, the display will show "**--**" for the piece position. To exit the Verify mode press GO then make your next move or call off a move from the computer.

15. SETTING UP A POSITION (Set Up Key)

This mode is designed to enable you to set up board positions to solve chess problems (e.g. solve mate problems) or to set handicaps by removing or entering a piece, as well as changing the positions of pieces.

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

Note: All previous stated moves are cancelled as soon as you enter the SET UP or ENTER mode.

To enter this mode press the SET UP key **twice** or if you are already in VERIFY FIND mode once. The display will show "EP – –", you are now in the **EP = ENTER** mode. If you now merely wish to alter a position by adding pieces or deleting pieces proceed as follows.

A. To Add A Piece:

- Before you make any key entries, first make sure that the colour setup is correct and if not press the COLOUR key to change this.
- Next press the key with the symbol of the piece that you wish to enter then the square where you wish to place this piece.
- Subsequent pieces of same kind and same colour can be entered without using any further Piece Symbol key.
- Press the GO key to exit this mode to begin to play.

Example:

To create a White Rook on square C1. Press COLOUR key to select the colour for White, then the piece symbol key for the Rook and the square "C1". The display will show " ♖ r c1". You can tell the computer about all the other pieces with choosing COLOUR and piece symbol keys independently until your position is complete. To exit this mode press GO. We recommend to verify your SET UP position before you start to play.

B. To Delete A Piece/Clearing The Entire Board:

- To remove a piece just press the square on which it presently stands.
- **To clear the entire board of all pieces press CLEAR key.**

C. Entering A Piece/Setting Up A Board Position:


- To move a piece from one square to another, simply press the present location of the piece that you want to move. Next press the square that you wish to move this piece to.
- Select the piece to be entered via the Piece Symbol key. Enter then the piece by gently pressing it on the desired square. The respective rank and file will be shown on the LCD display.
- Only change colour or use the Piece Symbol key again, if the piece or colour varies from the preceeding piece or colour.
- To end this mode press the GO key.

Note: When you have entered your position and are satisfied that it is correctly entered, press the GO key to return to the PLAY mode, the display will show " ♖ ♖ " indicating White's turn to move. You may now either enter a move or press the GO key again to cause the computer to make the move for White.

If you wish to resume play from your entered position with Black to make the next move press the COLOUR key first and then GO. The display will show " ♜ ♜ " indicating Black's turn to move. You may either move for Black or press GO to have the computer move for Black.

16. ACOUSTIC SIGNALS (Sound Key =)

The different acoustic signals and beeps can be switched on and off with the SOUND key.

ON= The display will show " SND ".
There will be an acoustic signal when pressing any key and when the NOVAG AQUAMARINE PREMIER or your make a move.

OFF= The display will show "SND ".
There will be no acoustic signals at all.

17. MEMORY

The NOVAG AQUAMARINE PREMIER has a long term memory and will retain the last board position. However, make sure that there are batteries in the chess computer otherwise you will lose the memory contents.

18. CARE OF THE NOVAG CHESS COMPUTER

- ◆ Handle the game carefully.
- ◆ Store the game away from dusty or dirty areas.
- ◆ Keep the game away from moisture or temperature extremes.
- ◆ Do not disassemble the game. If a problem occurs, remove or replace the batteries to reset the computer.

WARRANTY: For details please refer to the enclosed warranty card.

19. TECHNICAL INFORMATION

- Program Size 4 KByte ROM, 768 Byte RAM
- CPU Clock Speed 8 Mhz
- Function keys 16
- Power Consumption 9V DC 5ma
- Battery Operated 6 x 1,5V UM-3 type, (or AA size)
- 56 Levels + 7 Solve Mate Levels
- Take Back Function 32 halfmoves
- Large LCD Display showing:
Moves, Checkmate, Check,
En Passant, Capture, Draw.....etc.
- Set Up and Verify Function
- Hint and Training Function
- Acoustic Signals ON/OFF
- Miniature Size 234 x 284 x 27 mm

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" (displayed on the computer by "+") and must either
 - a) move the King,
 - b) block the path of the attacking piece with another piece, or
 - c) 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" (displayed by "♚").

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 row, 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 row, column 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 row or column 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 row, it must be immediately exchanged for a Queen, Rook, Bishop, or a Knight of the same colour 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 **6.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!

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