

Abridged English Instruction Manual for the Chessmaster Diamond Chess Computer.

Section 1 - BASICS

Powering up the computer.

Ensure the supplied AC adaptor is unplugged from the computer's low voltage power receptacle (located on the right hand side of the unit). Plug the AC adaptor into a standard powerpoint and then turn the powerpoint on. Plug the AC adaptor plug into the computer's low voltage power receptacle. The computer will beep and the green LED display will indicate "OK ?".

Starting, playing and completing a game at the default settings.

With the computer powered up, set the pieces up on the board in their starting positions with the white pieces at the bottom. Press the *Monitor* and *View* keys simultaneously. The computer will beep and the green LED display will indicate "L^Y".

To make a move, lift a piece from its current square and move it to a new, legal square. The unit will automatically register your moves with the in-built red LED indicators located upon each square. As soon as you place the piece on its new square, the unit will automatically begin to compute a response. The unit will indicate its response by illuminating two red board LEDs. The first red LED (non-flashing) indicates the square from which the piece is to be moved. Lift up the computer's piece from this square and place it upon the square with the second, red (flashing) LED. This completes the move for the computer and once again it is your turn to move.

Captures are indicated in the same way as normal moves. When capturing, remove the captured piece first, then complete the remainder of the move in the way described above.

To castle, first move the King from its starting position to its new square. Then move the rook from its starting position to its new square. This procedure applies when making your own moves as well as those of the computer.

Promotions for the human side are initially performed by advancing the pawn from the 7th to 8th rank, as if performing a normal pawn move. When you locate the pawn on the 8th rank, the green LED display will indicate "???" together with a symbolic representation of a queen. Should wish to promote your pawn to a queen, simply press the *Enter* key once. To perform under-promotions, input the following key sequence:

Promoted Piece	Key Sequence
Rook	Press <i>Move Fore</i> once then <i>Enter</i>
Bishop	Press <i>Move Fore</i> twice then <i>Enter</i>
Knight	Press <i>Move Fore</i> three times then <i>Enter</i>

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Promotions for the computer side are initially performed by advancing the computer's pawn from the 7th to the 8th rank (or from the 2nd to the 1st rank from your own perspective). When you locate the pawn on the computer's 8th rank, the green LED display will indicate the queening square together with a symbolic representation of the newly promoted piece. Please note that depending upon the circumstances, the computer may not automatically promote the pawn to a queen. The computer is capable of under-promotions; therefore you should exercise particular caution in replacing the pawn with the correct new piece as indicated in the green LED display. Once you have correctly replaced the pawn with the promoted piece, press the *Enter* key once to resume play.

Ending the game. You may resign or otherwise terminate the game at any time by simply pressing the *Monitor* and *View* keys simultaneously. This completely resets the computer's memory to default settings. Should your game conclude in checkmate, the green LED display will indicate the word "MATE". At this point you must reset the computer by pressing the *Monitor* and *View* keys simultaneously.

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Section 2 – FEATURES

Changing Levels

The Chessmaster Diamond incorporates the following levels:

- o 9 basic levels of human versus computer play (Levels 0 to 8 inclusive).
- o 1 infinite analysis level (Level 9).
- o 7 tournament or “Match” levels whereby a total time allocation for an entire game regardless of the number of moves can be pre-selected.
- o A “Referee” mode whereby two human players can play against each other with the computer monitoring the game and alerting the humans to illegal moves.
- o A “Self-Play” mode where the computer can be set to play against itself.
- o A “Problem” or mate-solving level.

In addition, the computer allows you to change the search algorithm for the basic playing levels by enabling a “deep” analysis function. This function improves the computer’s search algorithm but at the same time considerably increases the computer’s thinking time.

Selecting a basic level of play (Levels 0 to 8). Levels 0 to 8 represent average response time levels for human versus computer games. Level 0 is the fastest level (usually the computer will respond within a few seconds at this level) and Level 8 is the slowest level (usually the computer will respond within 2 - 3 minutes at this level). Level 8 is the recommended level for slow tournament games against the computer (for example, where utilising a 40 moves in 2 hours time control).

When you first turn the computer on (or otherwise clear the memory by pressing the *Monitor* and *View* keys simultaneously) the computer defaults to Level 0. You can change to Levels 1 through to 8 during a game whenever the computer is not thinking, or otherwise at the commencement of a game.

To change levels, press the *Parameter* key followed by the *Enter* key. The green LED display will indicate “LEV” followed by a number from 0 to 9. This number indicates the current level. To change to a higher level, repeatedly press the *Move Fore* key until the desired level number appears in the green LED display. Then press the *Monitor* key. To change to a lower level, repeatedly press the *Move Back* key until the desired level number appears in the green LED display. Then press the *Monitor* key.

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Selecting Level 9 – Infinite analysis. On level 9, the computer will think indefinitely until you manually interrupt the computer's thought process. To change to Level 9, press the *Parameter* key followed by the *Enter* key. The green LED display will indicate “LEV” followed by a number from 0 to 9. This number indicates the current level. Repeatedly press the *Move Fore* key until the green LED display indicates “LEV9”. Then press the *Monitor* key.

Should you wish for the computer to commence analysing the current board position immediately, simply press the *Enter* key. Should you wish to enter your own move first, the computer will only begin to analyse the position indefinitely once you have completed inputting your own move.

To interrupt the computer's thought process on Level 9, press the *Enter* key. The computer will then indicate what it considers to be the best move found so far.

Enabling the tournament or “Match” levels. These levels enforce a strict amount of time in which each side must complete all moves of the game. The first side to exceed this strict time control automatically forfeits the game regardless of the position at the time of forfeiture. The following match levels are available:

- Game in 5 minutes
- Game in 15 minutes
- Game in 30 minutes
- Game in 1 hour
- Game in 1 hour 30 minutes
- Game in 2 hours
- Game in 2 hours 30 minutes

Note that *each side* is given the amount of time indicated to complete all moves. For example, selecting the *Game in 30 minutes* level allows 60 minutes in total to complete the game, with each side not being allowed to exceed a time allocation of 30 minutes for all moves.

To change to these Match levels, ensure the pieces are set up in the correct starting positions. Press the *Monitor* and *View* keys simultaneously. Press the *Match* key. The green LED display will indicate “ 5 ”. This is the *Game in 5 minutes* Match level. To select one of the other match levels, repeatedly press the *Move Fore* key until the desired match level is indicated in the display (note the display indicates the total time allocation for one side only). Press the *Enter* key. The green LED display will now indicate “**YM**”. You may now commence the game.

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Disabling the tournament or Match levels. Note that once the computer is in Match mode, all the primary computer functions are temporarily disabled. These include the *Function*, *Selection*, *Parameter*, *Match*, *Board*, *Enter*, *Move Back* and *Move Fore* options. Because the *Function* capability is disabled, it is also not possible to exchange the program module (P10 or P11) when Match mode is operable. It is, however, possible to disable Match mode during a game. You may wish to do this for several reasons, including:

- o Swapping program modules.
- o Changing to a different Match level.
- o Changing to one of the basic levels of play or infinite analysis mode.
- o The computer is moving too quickly because it is running low on time.

To disable Match mode, perform the following steps:

- When it is your turn to move, press the *Monitor* key.
- Press the *View* key followed by the *Selection* key.
- Press the *Move Fore* key three times.
- Press the *Enter* key.
- Press the *Monitor* key.

The display will now read “ $\blacktriangleleft Y$ ” (if white is to move) or “ $\blacktriangleright Y$ ” (if black is to move). All functions can now be accessed. Should you wish to then select another Match level, simply follow once again the procedure entitled *Enabling the tournament or “Match” levels* when it is your turn to move. **Note: You cannot re-enable Match level in the middle of a game when it is the computer’s turn to move, since the Enter key is disabled.**

It should also be noted that re-enabling the same Match level late in a game will **not** result in slower response times to those when it was enabled at the commencement of a game. For example, the *Game in 2 hours 30 minutes* level has an approximate response time of just under 3 minutes per move on average. This response time does not change if this Match level is enabled at the beginning of the game or enabled after setting up an endgame position. This characteristic is advantageous in the instance where the computer may be running short on time because a large number of moves have been played in a game. If the computer is moving too quickly, simply exit Match mode then re-select the same Match time control again. This effectively allows the computer to play at classical time controls such as 40 moves in 90 minutes (*Game in 2 hours* Match level) or 40 moves in 2 hours (*Game in 2 hours 30 minutes* Match level).

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Referee mode. This mode enables moves for both sides to be manually entered onto the computer's board. The computer will not respond to any moves input for either side except to check each move for legality. If an attempt is made to input an illegal move, the green LED display will indicate the square to which the piece was illegally moved, together with two question marks. When this occurs, simply replace the piece upon its original square and select a legal move.

To select Referee mode, ensure the pieces are set up in the correct starting position. Press the *Monitor* and *View* keys simultaneously. Press the *Selection Dialogue* key followed by the *Enter* key. Press the *Monitor* key. You may now manually enter moves for both sides.

Should you wish to exit this mode at the current position, press the *Selection Dialogue* key followed by the *Enter* key. Press the *Monitor* key. You may now resume normal play at the current level or select another level.

Self-Play mode. This mode enables the computer to play both colours against itself. The operator must input the moves for both sides onto the computer's board, but apart from this no operator intervention is required. Self-Play mode operates only in conjunction with the normal playing levels (Levels 0 to 8 inclusive).

To select Self-Play mode, ensure the pieces are set up in the correct starting position. Press the *Monitor* and *View* keys simultaneously. Select the desired normal level (from Levels 0 to 8 inclusive). After selecting the desired level, ensure the green LED display indicates “ $\swarrow Y$ ”. Press the *Selection Dialogue* key followed by the *Move Fore* key. Press the *Enter* key. Finally, press the *Monitor* key. Play will now commence automatically. To interrupt the game, press the *Monitor* and *View* keys simultaneously.

Problem or mate-solving level. This level, as the name implies, solves mate problems.

To select the Problem level, firstly set up the desired board position. Refer to the section entitled *ADVANCED – setting up positions* for instructions on how to set up a board position. Ensure the green LED display indicates “ $\swarrow Y$ ” (if white is to move) or “ $\searrow Y$ ” (if black is to move). Press the *Selection Dialogue* key. Press the *Move Fore* key three times. Press the *Enter* key. Press the *Monitor* key. Finally press the *Enter* key to initialise the computer's thought process.

Note that the computer's thought process can be interrupted on this level simply by pressing the *Enter* key. The computer will then indicate what it considers to be the best move found so far.

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Modifying the search algorithm.

The computer incorporates a “deep” search function that modifies the search algorithm. Whilst enabling this function improves the computer’s standard of play, it also considerably increases the computer’s thinking time. This function is only effective when using the normal levels (Levels 0 to 8 inclusive) and the infinite analysis level (Level 9).

To enable the deep search function, firstly ensure that a normal playing level (Levels 0 to 8 inclusive) or the infinite analysis level (Level 9) is selected. Ensure the computer is not thinking. (The computer’s thought process can be interrupted at any time by pressing the *Enter* key whilst the computer is thinking). Ensure the green LED display indicates “ $\swarrow Y$ ” (if white is to move) or “ $\nwarrow Y$ ” (if black is to move). Press the *Selection Dialogue* key. Press the *Move Back* key three times. Press the *Enter* key. Press the *Monitor* key.

To disable this function, firstly ensure the computer is not thinking. Ensure the green LED display indicates “ $\swarrow Y$ ” (if white is to move) or “ $\nwarrow Y$ ” (if black is to move). Press the *Selection Dialogue* key. Press the *Move Back* key three times. Press the *Enter* key. Press the *Monitor* key.

Note that the computer may think for very long periods when the “deep” search function is enabled. Level 3 “deep” and beyond, for example, will take longer than the standard Level 8 setting, which means these levels are unsuitable for standard tournament play.

Randomising the computer’s responses.

By default, the computer will always respond with the move it considers to be the “best”. As a result, on a given level the computer will nearly always respond with the same move in a given position. This can often slightly improve the playing strength of the program however this also reduces the computer’s variety of play. The computer therefore incorporates a function to select a response from a list of “candidate” moves, all of which the computer considers to be strong replies, but not necessarily the very best reply. Should a position have only one obviously strong reply, the computer will only play that reply. The computer will therefore only select from the list of “candidate” moves where it considers this to be of little or no consequence to the strength of its position.

This function is only effective when using the normal levels (Levels 0 to 8 inclusive), the infinite analysis level (Level 9) or the Match levels. This function can only be enabled whenever the computer is not thinking.

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To enable this function when using the normal levels (Levels 0 to 8 inclusive) or the infinite analysis level (Level 9), firstly ensure the computer is not thinking. Ensure the green LED display indicates “ $\blacktriangleleft Y$ ” or “ (if white is to move) or “ $\blacktriangleright Y$ ” (if black is to move). Press the *Selection* key. Press the *Move Back* key three times. Press the *Enter* key. Press the *Monitor* key.

To disable the randomisation function when using the normal levels (Levels 0 to 8 inclusive) or the infinite analysis level (Level 9), firstly ensure the computer is not thinking. Ensure the green LED display indicates “ $\blacktriangleleft Y$ ” (if white is to move) or “ $\blacktriangleright Y$ ” (if black is to move). Press the *Selection* key. Press the *Move Back* key three times. Press the *Enter* key. Press the *Monitor* key.

To enable the function whilst using a Match level, ensure the pieces are set up in the correct starting positions. Press the *Monitor* and *View* keys simultaneously. Ensure the green LED display indicates “ $\blacktriangleleft Y$ ”. Press the *Selection* key. Press the *Move Back* key three times. Press the *Enter* key. Press the *Monitor* key. Press the *Match Time* key. The green LED display will indicate “ 5 ”. This is the *Game in 5 minutes* Match level. To select one of the other Match levels, repeatedly press the *Move Fore* key until the desired Match level is indicated in the display (note the display indicates the total time allocation for one side only). Press the *Enter* key. The green LED display will now indicate “ $\blacktriangleleft YM$ ”. You may now commence the game.

To either enable or disable the randomising function on any of the Match levels during the game, firstly follow the procedure entitled *Disabling the tournament or Match levels* whilst it is your turn to move. When the green LED display indicates “ $\blacktriangleleft Y$ ” or “ (if white is to move) or “ $\blacktriangleright Y$ ” (if black is to move), press the *Selection* key. Press the *Move Back* key three times. Press the *Enter* key. Press the *Monitor* key. You can now re-enable Match mode as per the procedure entitled *Enabling the tournament or “Match” levels*.

Disabling sound

By default, the computer responds to user input by sounding a buzzer. The buzzer also sounds to indicate the computer’s moves.

To disable the sound function, firstly ensure the computer is not thinking. Ensure the green LED display indicates “ $\blacktriangleleft Y$ ” or “ (if white is to move) or “ $\blacktriangleright Y$ ” (if black is to move). Press the *Selection* key. Press the *Move Fore* key twice. Press the *Enter* key. Press the *Monitor* key.

To re-enable this function, firstly ensure the computer is not thinking. Ensure the green LED display indicates “ $\blacktriangleleft Y$ ” (if white is to move) or “ $\blacktriangleright Y$ ” (if black is to move). Press the *Selection* key. Press the *Move Fore* key twice. Press the *Enter* key. Press the *Monitor* key.

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To disable the sound function whilst using a Match level, ensure the pieces are set up in the correct starting positions. Press the *Monitor* and *View* keys simultaneously. Ensure the green LED display indicates “ $\swarrow Y$ ”. Press the *Selection* key. Press the *Move Fore* key twice. Press the *Enter* key. Press the *Monitor* key. Press the *Match* key. The green LED display will indicate “ 5’ “. This is the *Game in 5 minutes* Match level. To select one of the other Match levels, repeatedly press the *Move Fore* key until the desired match level is indicated in the display (note the display indicates the total time allocation for one side only). Press the *Enter* key. The green LED display will now indicate “ $\swarrow YM$ ”. You may now commence the game.

To either enable or disable the sound function on any of the Match levels during the game, firstly follow the procedure entitled *Disabling the tournament or Match levels* whilst it is your turn to move. When the green LED display indicates “ $\swarrow Y$ ” or “ (if white is to move) or “ $\nwarrow Y$ ” (if black is to move), press the *Selection* key. Press the *Move Fore* key twice. Press the *Enter* key. Press the *Monitor* key. You can now re-enable Match mode as per the procedure entitled *Enabling the tournament or “Match” levels*.

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Section 3 – ADVANCED

Starting a game playing black from the bottom.

With the computer powered up, set the pieces up on the board in their starting positions with the black pieces at the bottom. Press the *Monitor* and *View* keys simultaneously. The computer will beep and the green LED display will indicate “ $\swarrow Y$ ”. Press the *Selection* key. Press the *Move Back* key twice. Press the *Enter* key. Press the *Monitor* key. You may now select your desired playing level and features. To commence the game with the computer playing white from the top of the board, press the *Enter* key.

The Opening and Endgame modules.

The Chessmaster Diamond ships with separate P10 Openings and P11 Endgame modules in addition to the main program housed within the computer itself. The purpose of the P10 Openings module is provide a library of opening moves for the computer to draw upon. Otherwise it has no effect on the playing ability of the program itself. The P11 Ending module not only improves the endgame, but *all* aspects of the computer’s game, including the opening and middle game phases. It is thus recommended that the P10 Openings module be used to ensure strong and variety-filled play from the computer during the opening. Once the computer has left the openings library provided in the P10 module, the P11 module should be immediately inserted to ensure maximum playing strength.

To insert a module. Either module may be inserted in one of two ways. Firstly, the computer may be disconnected from the power supply. The existing module (if any) may be removed by firmly but gently pulling on the module cover (located on the right hand side of the computer) and sliding the module out. The replacement module may then be carefully inserted into the right hand side of the computer and firmly but gently pressed into place.

A module can be replaced during the course of a game by following the second method described below. When it is your turn to move, ensure the green LED display indicates either “ $\swarrow Y$ ” (if you are playing from the bottom of the board) or “ $\nwarrow Y$ ” if you are playing from the top of the board. Press the *Function* key. Press the *Move Fore* key three times. Press the *Enter* key. The green LED display will now go blank. Remove the existing module (if fitted) by firmly but gently pulling on the module cover (located on the right hand side of the computer) and sliding the module out. The replacement module may then be carefully inserted into the right hand side of the computer and firmly but gently pressed into place. Once the replacement module is correctly positioned, press the *Monitor* key. Play can now be resumed with the new module.

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Determining the optimum module exchange point within the game. In order to optimise both the openings book availability as well as the overall playing strength of the program, the following procedure is recommended (this procedure assumes that Match mode is not enabled). It assumes the player is white, however the procedure can be easily modified if the player plays with black at the bottom. In the latter case, firstly follow the steps outlined in the procedure entitled *Starting a game playing black from the bottom*.

- Ensure the P10 Openings module is inserted before the commencement of the game.
- Before white's first move, press the *View* key followed by the *Monitor* key.
- Press the *View* key followed by the *Function* key.
- Press the *Move Fore* key.

The green LED display should now read "THEO". Commence the game, keeping an eye on the green LED display after each of the computer's responses. When the computer responds and the green LED display goes blank, continue the procedure as follows:

- Execute the computer's move on the board.
- Press the *Monitor* key.
- Press the *Move Back* key then take back the computer's last move on the board.
- Press the *Move Back* key then take back your last move on the board.
- Press the *View* key followed by the *Monitor* key.
- Press the *Function* key.
- Press the *Move Fore* key three times.
- Press the *Enter* key.

The green LED display will now be blank. Remove the P10 Openings module and insert the P11 Endgame module. Once the P11 Endgame module has been fully inserted, press the *Monitor* key. You can then once again execute your last move. This time, when the computer responds, it will use the improved program extensions contained within the P11 module to calculate it's response, rather than the basic program contained within the unit itself.

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Procedure for optimised module exchange when playing in Match mode. It is possible to exchange program modules during a Match game, but at the cost of the game not operating strictly according to the selected Match time control. The reason for this is that the computer needs to have Match mode disabled in order to facilitate the module exchange. The procedure outlined below thus involves exchanging the P10 Openings module for the P11 Endgame module (at the point where the computer's openings library is exhausted) and *then* enabling Match mode. As can be seen, this means that both the player and computer are playing using the selected Match time control, but only from the end of the opening library line onwards. Nevertheless, this method does result in the computer playing at its optimum strength and it does not effect the computer's response times. The following procedure assumes the player is white, however the procedure can easily be modified if the player plays with black at the bottom. In the latter case, firstly follow the steps outlined in the procedure entitled *Starting a game playing black from the bottom*.

- Ensure the P10 Openings module is inserted before the commencement of the game.
- Ensure the computer is set to Level "0" (*not* a Match level).
- Before white's first move, press the *View* key followed by the *Monitor* key.
- Press the *View* key followed by the *Function* key.
- Press the *Move Fore* key.

The green LED display should now read "THEO". Commence the game, keeping an eye on the green LED display after each of the computer's responses. When the computer responds and the green LED display goes blank, continue the procedure as follows:

- Execute the computer's move on the board.
- Press the *Monitor* key.
- Press the *Move Back* key then take back the computer's last move on the board.
- Press the *Move Back* key then take back your last move on the board.
- Press the *View* key followed by the *Monitor* key.
- Press the *Function* key.
- Press the *Move Fore* key three times.
- Press the *Enter* key.

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The green LED display will now be blank. Remove the P10 Openings module and insert the P11 Endgame module. Once the P11 Endgame module has been fully inserted, press the *Monitor* key then continue the procedure as follows:

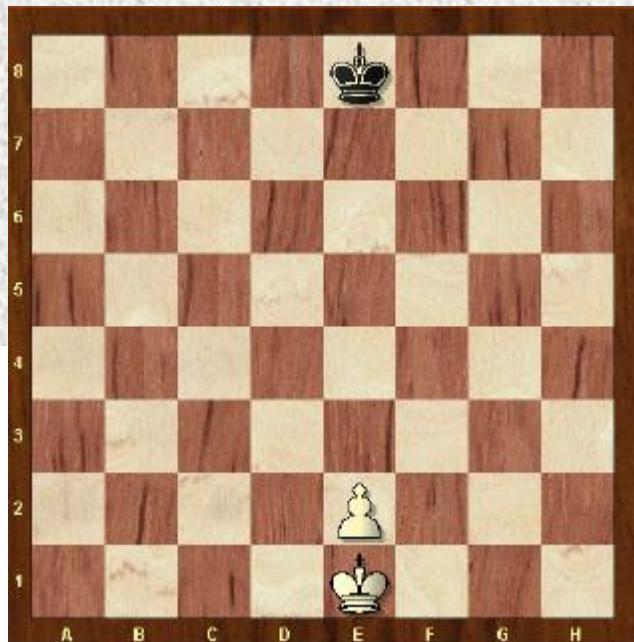
- Press the *Match* key.
- If necessary, repeatedly press the *Move Fore* key until the desired match level is indicated in the display.
- Press the *Enter* key.
- Execute your last move once again.

Setting up positions.

To set up a position, first decide whether white is to play from the top or the bottom of the board. Having decided this, set the white and black pieces up their respective positions on the computer's board.

The first example (Figure 1 below) illustrates a basic position where white is playing from the bottom of the board:

Figure 1



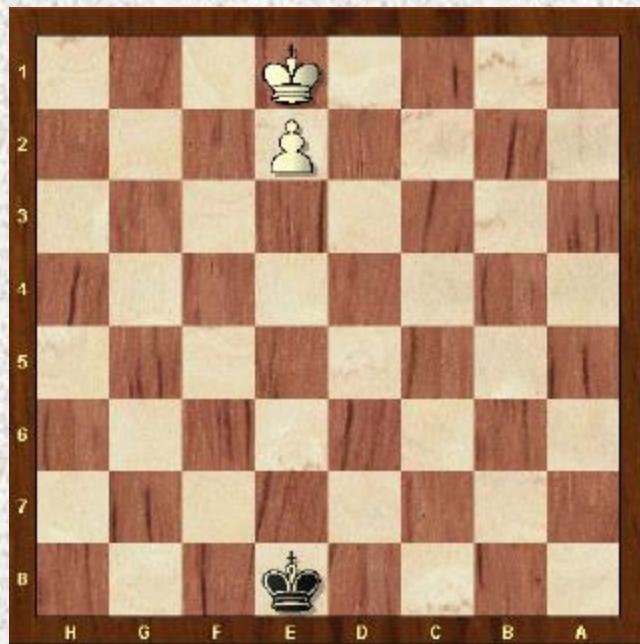
After placing the appropriate pieces in the positions shown in Figure 1, press the *Monitor* and *View* keys simultaneously. The green LED display will indicate "OK ?". Press the *Board* key followed by the *Enter* key. The green LED display will indicate "E1??".

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Lift the white king from its E1 square and replace it upon its E1 square. The green LED display will now indicate “E2??”. Lift the white pawn from its E2 square and replace it upon its E2 square. The green LED display will now indicate “E8??”. Lift the black king from its E8 square and replace it upon its E8 square. The green LED display will now read “OK”. Press the *Monitor* key. The green LED display will now read “**LY**”. Now select your desired playing level (Levels 0 – 9 inclusive, Referee mode, Self-Play mode or Problem mode). You may now continue to play as white or alternatively press the *Enter* key and the computer will play as white from the bottom of the board.

The second example (Figure 2 below) illustrates the same position as the first example, however in this instance white is playing from the top of the board:

Figure 2



After placing the appropriate pieces in the positions shown in Figure 2, press the *Monitor* and *View* keys simultaneously. The green LED display will indicate “OK ?”. Press the *Board* key. Press the *Selection Dialogue* key. Press the *Move Back* key. Press the *Enter* key. Press the *Board* key. Press the *Enter* key. The green LED display will indicate “E1??”, but this time the board coordinates will have been switched around so that the LED on the D8 (E1) square is illuminated at the top of the board.

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Lift the white king from its D8 (E1) square and replace it upon its D8 (E1) square. The green LED display will now indicate “E2??”. Lift the white pawn from its D7 (E2) square and replace it upon its D7 (E2) square. The green LED display will now indicate “E8??”. Lift the black king from its D1 (E8) square and replace it upon its D1 (E8) square. The green LED display will now read “OK”. Press the *Monitor* key. The green LED display will now read “ \blacktriangleleft Y”. Now select your desired playing level (Levels 0 – 9 inclusive, referee mode, self play mode or problem mode). You may now press the *Enter* key and the computer will play as white from the top of the board. Alternatively you may make the first move for white from the top of the board and the computer will continue to play black from the bottom of the board.

The third example (Figure 3 below) illustrates a position where white is playing from the bottom of the board. Notice that unlike the first two examples, none of the pieces are in their original starting positions:

Figure 3



The key behind entering positions such as these is to lift each piece from its square, then place that piece upon its *original starting square*, then replace the piece on its square.

After placing the appropriate pieces in the positions shown in Figure 3, press the *Monitor* and *View* keys simultaneously. The green LED display will indicate “OK ?”. Press the *Board* key followed by the *Enter* key. The green LED display will indicate “H1??”.

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Lift the white king from its H1 square. You now need to place the white king on its original E1 square in order to tell the computer that the piece on H1 is actually a white king. However there is currently a white rook on E1. Never mind! Simply lift the white rook from its E1 square and then replace the white rook upon its E1 square. Finally, replace the white king upon its H1 square. The computer will now recognise that the white king is located upon square H1. The green LED display will now indicate "H3??". Lift the white pawn from its H3 square. Place the white pawn upon any square along the 2nd rank (white pawn starting positions). Finally, replace the white pawn upon its H3 square. The green LED display will now indicate "H6??". Lift the black pawn from its H6 square. Place the black pawn upon any square along the 7th rank (black pawn starting positions). Finally, replace the black pawn upon its H6 square. The green LED display will now indicate "H8??". Lift the black bishop from its H8 square. Place the black bishop upon the F8 square, then replace the black bishop upon its H8 square. The placement process remains essentially the same for all the remaining pieces on the board. You will note, however that a white rook is placed upon the E1 square. You *cannot* lift the king from the H1 square in order to tell the computer that the rook is placed upon the E1 square. To do so would cause the positioning information relating to the white king to be lost. Therefore in this instance, you need to lift the white bishop from its A1 square in order to tell the computer that the rook is placed upon the E1 square.

Using the process outlined above, continue to set up all the remaining pawns and pieces upon their squares.

The green LED display will now read "OK". Press the *Monitor* key. The green LED display will now read "LY". Now select your desired playing level (Levels 0 – 9 inclusive, Referee mode, Self-Play mode or Problem mode). You may now continue to play as white or alternatively press the *Enter* key and the computer will play as white from the bottom of the board.

Note that the above position can of course be set up so that white plays from the top of the board. After placing the white pieces at the top of the board and the black pieces at the bottom of the board, press the *Monitor* and *View* keys simultaneously. The green LED display will indicate "OK ?". Press the *Board* key. Press the *Selection Dialogue* key. Press the *Move Back* key. Press the *Enter* key. Press the *Board* key. Press the *Enter* key. The green LED display will indicate "H1??", but this time the board coordinates will have been switched around so that the LED on the A8 (H1) square is illuminated at the top of the board.

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Setting up positions – black to move and castling rights.

When setting up positions, you can provide additional information to the computer regarding the castling rights of both sides. Additionally, you may enter positions where black is to move first. By default, all set up positions assume white to move and permit castling rights for both sides (where the manoeuvre is legal). Please note that a limitation exists whereby it is not possible to define *individual* castling rights to each colour – the only possibilities are that *both* sides *can* castle or that *both* sides *cannot* castle.

The following exercises illustrate these concepts.

The first example (Figure 4 below) illustrates how castling rights may be denied to both sides. Set up the position in Figure 4 with white at the bottom of the board:

Figure 4



By default, both sides have the option to castle in this position. To deny this right, firstly ensure that the green LED display indicates “**LY**”. Press the *Board* key followed by the *Move Back* key. Press the *Enter* key twice. Press the *Board* key. Press the *Monitor* key. The computer now recognises that the castling manoeuvre is illegal for both sides.

The second example (Figure 5 overleaf) illustrates how to establish a position where black is to move first from the top of the board. Set up the position in Figure 5 with white at the bottom of the board:

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Figure 5



Ensure that the green LED display indicates “ $\swarrow Y$ ”. Press the *Board* key. Press the *Move Fore* key three times. Press the *Enter* key. The green LED display will now indicate “ $\nwarrow Y$ ”.

The final example (Figure 6 below) illustrates how to establish a position where black is to move first from the bottom of the board. Set up the position in Figure 6 with black at the bottom of the board:

Figure 6



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Ensure that the green LED display indicates “**NY**”. Press the *Board* key. Press the *Move Fore* key three times. Press the *Enter* key. The green LED display will now indicate “**LY**”.

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