

INSTRUCTION MANUAL



OPERATING INSTRUCTIONS FOR COMPUCHESS I

CompuChess I plays chess at any one of six (6) selectable levels of intelligence. A complete game may be played or a specific game situation can be set up and played. These instructions detail how to use CompuChess I and the controls offered through the keyboard.

IMPORTANT: THE USER MUST EXERCISE CARE TO USE THE KEYBOARD CORRECTLY WHEN ENTERING HIS MOVES OR MANIPULATING THE CONTROL FUNCTIONS.

THE MACHINE DOES NOT MAKE ERRORS BUT MAY APPEAR TO SIMPLY BECAUSE OF OPERATOR ERROR. USE THE DISPLAY TO VERIFY EACH ENTRY DESIRED.

A VALUABLE AID

For both the practical chess player as well as the beginner, an invaluable tool is pencil and paper. Write all moves down. In this way, the user will keep track of his moves and can easily understand and correct any entry errors. Remember, the machine is always black.

DEFINITION OF KEYBOARD TERMS:

Every key is a two-function key with both letter or number plus a signature of its second function as follows:

wk = white king
wq = white queen
wn = white knight
wb = white bishop
wr = white rook
wp = white pawn

bk = black king
bq = black queen
bn = black knight
bb = black bishop
br = black rook
bp = black pawn

- PLAY Machine's move; commands the machine to think of the player's last move and determine a response.
- MD More data requested; the machine is made to wait for more data or command inputs from the keyboard.
- EP Enter piece; machine is made to expect a piece to be selected and immediately followed by a letter/number location to put it in.
- FP Find piece; machine is made to expect a piece to be interrogated and it will display the location for that piece, i.e. FP, wq yields FPdl on the display.

DEFINITION OF DISPLAY:

A =	A	1 =	1
b =	b	2 =	2
C =	C	3 =	3
d =	d	4 =	4
E =	E	5 =	5
F =	F	6 =	6
G =	G	7 =	7
H =	H	8 =	8

Small b is used because capital B would look like an 8 and a small d is used because capital D would look like a O.

TURN-ON:

The machine should be connected to the power supply module with the on/off switch "off" prior to plugging the power supply module into the wall. To turn on, turn the on/off switch to "on".

RESET:

Reset is accomplished by selecting "reset" on the reset switch. Returning the reset switch to "run" permits the game to be played. An indication that the machine has been reset is shown by an "L" on the display.

L:

The character "L" is the machine's way of asking the user what level of intelligence it should think with. At the appearance of "L", the user should specify and depress his selection of some number between 1 and 6. The following chart is a guide for the average user:

- LEVEL 1: Elementary; instant machine response.
- LEVEL 2: Practiced beginner; 15-20 second response.
- LEVEL 3: Average Player; 20 second to 15 minute response.
- LEVEL 4: Over Average Player; 20 second to 15 minute response.
- LEVEL 5: Advanced Player; special situation; any "Mate-in-Two" problem; up to 10 hour response depending on board complexity.
- LEVEL 6: Highly advanced; up to 1 or 2 day response; intended for quality moves in "mail chess" and other long-duration games.

BOARD POSITION:

There are three selectable board positions or situations that the user may play from. After the level of intelligence "L" has been entered, the machine will respond with a "bP" display which is its way of asking the user what board position or situation it should be prepared for. The user should then depress "A" for a new game set up; "B" for a blank board, or "C" for the last known board situation. Control "B" is used only if the user wants to set up a specific game situation with some selected pieces placed where the user wants them. Control "C" is used only if the player decides to change the machine's level of intelligence during a game and then return to the game in progress.

ENTERING A MOVE:

The machine is programmed to recognize the moves in accordance with the standard coordinate system assigned for chess. The column assignments are A through H (left to right) and the rank assignments are 1 through 8 (player closest to player furthest). The player is always white and the machine is always black; therefore, a typical game beginning will go as follows:

PLAYER ACTION

DISPLAY

1. Turn-on

L or (. . . .)

PLAYER ACTION**DISPLAY**

- | | |
|---|--|
| 2. Reset | L |
| 3. "2" depressed (selects Level 2) | bP |
| 4. "A" depressed (selects new game board. FLASHING "...." indicates that the machine is waiting for an entry. The player may now make his move. Assume a king's pawn opener. Player moves the pawn located at E2 to E4) | (....) FLASHING |
| 5. "E2E4" depressed | E2E4 (The display verified what the player has entered on the keyboard.) |
| 6. "Play" depressed | 2 FLASHING (The Flashing display indicates that the machine is thinking and the number "2" indicates its level of thinking.) |
| 7. (Player waits) | E7E5 (E7E5 is a likely response to the player's opener.) |
| 8. Letter-number-letter-number depressed | Display player's entry |
| 9. "Play" depressed | Think; FLASHING "2" |

It must be remembered that the player has to physically move the black pieces for the machine in accordance with the machine's response. The machine will remember where the pieces are at all times. The board will be the "memory" for the player.

THE FLASHING HYPHEN (-):

The machine will respond almost human-like when it is pressured on levels 3 and 4. Here, when it sees a check, possible checkmate, or a serious threat to its more valuable pieces, it will display a flashing hyphen (-) to indicate that it needs to think out its move more carefully. And, as with a person, the response time will be longer.

CASTLING:

The machine will castle only when it believes that the castle is its best move and it will do so by displaying O-OH (King's castle) or O-OA (Queen's castle). Obviously, the A indicates a castle on the A side and the H means a castle on the H side.

Now for the player to castle, he must enter in the moves specifically. For example, player King's castle would proceed as:

1. H1F1
2. MD
3. E1G1
4. PLAY

CHANGING THE MACHINE'S LEVEL:

The RESET button may be activated in the middle of a game to change the intelligence level of the machine with the following exception; NEVER RESET THE MACHINE WHILE IT IS THINKING. The only time to RESET is after the machine has responded to a move and is waiting for a player's entry. Resetting the machine while it is thinking can result in erroneous moves even if the pieces appear at their correct location.

CANCELLING A MOVE:

The player can cancel his move after he has entered it on the keyboard and BEFORE he has depressed "PLAY" by merely depressing "C". That is, after a move has been keyed in and is shown on the display, depressing "C" will cancel the move and return the display to a "... ." indicator. The player can cancel his move after depressing "PLAY" only by:

STEP

1. Wait for the machine to respond.
2. Enter the machine's move in reverse; i.e. machine moved b8C6, player moves C6b8 to cancel machine's move.*
3. Depress "MD".
4. Enter the player's move to be cancelled in reverse.
5. Depress "MD".
6. Enter the desired move.
7. Depress "PLAY".

* The machine may have captured a player's piece with its move in which case that piece has to be replaced. After Step 4, depress EP once, verify "EP" display, depress piece lost once, and then depress the letter-number coordinate where the piece should be. (See the next section for detailed explanation.)

SETTING UP UNIQUE GAME SITUATIONS:

The player may start his game with a blank board by depressing "B" in response to the machine's request for "bP". The player may now place both black and white pieces at specific coordinates with the following procedure:

STEP	PLAYER ACTION	DISPLAY
1.	Depress "EP"	EP
2.	Depress desired piece key once ; i.e. depress "wk" once (and only once).	EP
NOTE: the display will not indicate the piece selected but the machine has recognized the fact that one was selected. It will forget that selection after the coordinates are assigned.		
3.	Depress the letter-number location; i.e. depress "E1".	EPE1
4.	Depress "EP"	EP
5.	Repeat steps 2 and 3 for the next selected piece.	

The player can continue to enter pieces in this fashion until he has completed his board situation. To verify the piece locations, the player should:

STEP	PLAYER ACTION	DISPLAY
1.	Depress "FP" after entering the last piece location.	FP
2.	Depress piece key in question (i.e. wk)	FPE1
3.	Depress next piece in question.	

Continuing to depress a piece key will list the existing locations followed by a "00" indicating that there are no more of that requested type piece on the board.

USING FP:

The FP (find piece) control function gives the player the opportunity of checking his board.

The FP key should not be depressed while the machine is thinking.

After all of the pieces have been installed as desired, depressing the "PLAY" key will permit the machine to make the next move. The player may move first merely by depressing MD and then entering his move coordinates. The machine CANNOT be made to "PLAY" after the "MD" key has been depressed. In the MD mode, the machine is waiting for more data from the player. If the player desires to leave the board situation exactly as it is but has found himself in the MD mode when he wants the machine to be making its move, he should depress "FP", locate any piece (black or white) and then depress "PLAY". This will place the machine in the think state with the given board situation.

PROMOTING A PAWN:

The machine will automatically promote its Pawns to Queens when they reach the eighth rank. Therefore, the player must remember to identify these pieces correctly as they are promoted.

The player has the option to promote his pawns to any piece he may desire. To do this, he must complete and enter his pawn move to the eighth rank (A7A8) and then he must enter his selected promotion to that location using the EP control function. The entries may, for instance, be as follows: A, 7, A, 8, MD, EP, wq, A, 8, PLAY. The wq was selected but it could have been wn, etc.

EN-PESSANT:

The machine will not recognize its pawn captured EN-PESSANT without the moves entered explicitly. With a white pawn at A5 an example would be:

WHITE MOVE	DISPLAY
—	b7b5 (black move)
A5b6 (entered)	A5b6
MD (entered)
A5b5 (entered)	A5b5
PLAY (entered)	

The A5b5 move removes the black pawn from the b5 location.

GAME TIPS:

- The machine will never make an illegal move. However, because of the control features offered by the keyboard, the machine will not balk if the player makes an illegal move. The machine will accept an illegal move, whether intentional or unintentional, and proceed to play the game under the given board situation. This feature is handy in that the player has the ease of withdrawing his move or generally fixing the board to any position he desires to play from. (In some quarters this has been known as cheating.)
- Occasionally the machine will **appear** to make a "dumb" move. STAID has found that a player will quickly draw this conclusion and then continue to play on. The most interesting fact is that if the player were to carefully analyze the choices offered the machine, the move may not appear all that dumb. For the most part, the "dumb" move actually was a price paid to avoid a trap that the player didn't realize he had inadvertently set up. Analyzing these situations when they occur becomes an excellent education for the user.
- The machine will always make the basic assumption that its opponent is as smart as the machine. Because of this, it will give up in what is to it an obvious "mate-in-two" situation. That is, if it is possible for the player to beat the machine unquestionably in two moves, the machine will quit with a display stating "LOSE". This will only happen on programmed levels of 5 and 6. On levels 1 thru 4, the machine will move to its last escape and will display "LOSE" only when it is physically in checkmate. When this happens, it can

be a real challenge and education, at times, for the player who cannot readily recognize the mate-in-two situation.

- d) In a similar situation to (c) above, the machine tends to relax on what it considers to be a player's hopeless cause. That is, once it has wittled its opponent down to his king alone, the machine believes that the player ought to concede the game. Here, for instance, the machine might have a rook or two, a queen and a handful of pawns to the player's king. Well, if the player insists on playing it out, the machine may relax and merely idle about while waiting for the player to trap himself.

STALEMATE:

Stalemate is indicated by a king move to its own position which says there is no place that it can go without being in check. G6G6 is an example of such a move.

PLAYER LOSES:

Whenever the machine makes a move such as to put the player in check, it will display the move and flash the display. The flashing display is intended to get the player's attention. If that move happened to be checkmate, then it is up to the player to concede the game by resetting, turning it off, or otherwise quitting.

JUST HOW GOOD ARE YOU?

Even with the advanced technology employed in CompuChess, a computer opponent can never be a perfect opponent. A good player will learn to beat the machine readily because he learns and the machine does not.

For the learned player, the challenge becomes multiplied by handicap. Deleting the white queen at the game's beginning can lead to a real struggle at mid-game. Or, delete a queen and replace it with a rook for a different challenge.

CompuChess is capable of playing the game under the basic rules and it will strategize around whatever handicap the player gives himself. And, it will recognize a different strategy for pieces placed at odd locations.

THE BASIC RULES OF CHESS

In any chess game the object is to capture the opponent's king. Or, at least, trap it where it can be captured on the next move which, of course, ends the game. Several odd pieces are assigned different capabilities and these are placed about the king at the game's beginning to both protect him and be the aggressor against the opponent. Each player takes a turn and moves a piece strategically to strengthen both postures.

Many volumes have been written by expert players which elaborate on the various strategies of the game and they won't be discussed here. Instead, only the basic legal moves will be discussed here to aid the beginner with his first game.

The Starting Board Position

The board is set up according to the layout shown below and the pieces have the assignments and abbreviations listed.

bk = black king
bq = black Queen
bb = black bishop
bk = black knight
br = black rook
bp = black pawn

wk = white king
wq = white Queen
wb = white bishop
wk = white knight
wr = white rook
wp = white pawn

8	br	bn	bb	bq	bk	bb	bn	br
7	bp	bp	bp	bp	bp	bp	bp	bp
6								
5								
4								
3								
2	wp	wp	wp	wp	wp	wp	wp	wp
1	wr	wn	wb	wq	wk	wb	wn	wr
	A	B	C	D	E	F	G	H

White Square 

White always goes first and who is white can be decided by the players. CompuChess is automatically assigned as black which should quickly end that argument.

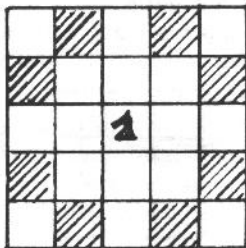
For the Beginner: The Pieces and their Moves

KING: The tall, majestic player that starts out next to the Queen is the most important piece when it comes to surviving the game. Unfortunately, he is not very agile and can't move but one square at a time. He can, however, go in any direction; up or down columns, back and forth on rows as well as diagonally. He cannot displace his own pieces but he can take and displace an enemy piece.

QUEEN: Unlike the king, the Queen is the most agile piece on the board and, hence, the most powerful. She may go in any direction up or down columns, back and forth on rows and diagonally as far as she wants as long as she doesn't hop over or displace her own pieces. She can, however, displace and capture any enemy piece.

BISHOP: This fellow with his pointed head can only move diagonally and each player has two bishops; one for the white diagonals and another for the black diagonals. He can move as far as he wants as long as he doesn't jump or displace his own color. He can, however, displace and capture an enemy piece. The bishop is considered to be slightly more valuable than the knight depending on its board position.

KNIGHT: From the days of old, this fellow rides a horse and moves elusively. He is the only piece that can jump his own pieces and the opponent's piece as long as his destination is either an open square or one occupied by an opponent. He cannot displace his own piece but can capture an opponent. His moves are row-column only and not on the diagonals and he can only follow the "one up and two across" or "two up and one across" pattern as shown in the sketch. Here, he may only move to the shaded squares as shown.



Move Latitudes of the Knight

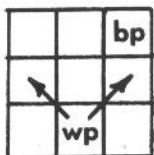
ROOK: His shape is similar to the corner tower cut away from an ancient castle and his moves are along the rows or columns only. He may go any distance as long as he doesn't hop any piece. And, he can only capture or displace an opponent's piece. He is considered more valuable than the bishop.

PAWN: This little fellow is the least valuable of pieces and has a very restricted move pattern. First, he can only move forward. Initially, his first move can be two squares but additional moves can only be one square at a time. He can capture and displace opponent pieces only by taking them on a diagonal move which is the only time the pawn can move diagonally. There is hope for this fellow because he is the only piece on the board that can be rewarded a promotion. If he is successfully moved to his opponent's eighth rank (as far as he can go) he warrants a promotion to the level of any desirable piece regardless of the pieces presently on the board. And, he gets his promotion at the time of arrival.

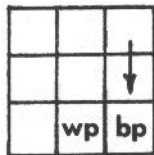
Special Moves

Castling: This is a two-piece move of the king and a rook privileged only under certain conditions. First, neither piece can have been moved prior to the castle move. There can be no pieces between the rook and king. And, through the motions of the move, the king cannot be subjected to a check or threat of being taken at any interim square. Both the king-side and Queen-side castle is expedited by moving the king to the square adjacent to the rook and then jumping the rook over the king.

En-Passant: When looking forward from a pawn's standing position, he can be considered to be attacking the two squares on the forward diagonals. If an opponent exercises a pawn first move such that he moves two squares to jump over the attached square, the first pawn can take the second by moving diagonally into the square avoided. This is a capture by en-passant.



**Attacked
Squares**



**bp
Move**



**Capture by
En-Pessant**

Check and Checkmate

The king is in "check" when it is being directly attacked by an opponent. The check has to be countered by moving or protecting the king. If the king cannot be protected, or if any of the next moves still result in a check, the position is "checkmate" and the game is over.

Stalemate

This situation occurs when the only move possible is by the king but to move it means that the king will be placed from a position not in check to a position that is in check. Stalemate is considered not losing. It is like losing all of the battles but not losing the war.

Summary Comment

The previous is not meant to detail all of the subtle refinements of the game nor are all of the rules spelled out. However, the sufficient rules are outlined and the beginner can now begin to play the game of chess.

CompuChess Warranty:

All merchandise is warranted against defects in material and workmanship for a period of 90 days from purchase. Warranty claims should be sent in writing to:

REL PRODUCTS INCORPORATED (Service Center)
P.O. Box 65
Largo, Florida 33540

Proof of purchase (receipt) must be enclosed.

Service:

Following the 90 day warranty period, and for the next 275 days, merchandise will be repaired according to the following schedule:

- a) Games are to be returned prepaid to STAID INCORPORATED factory in Largo, Florida.
- b) A check for \$35.00 must be enclosed. This will cover the repair costs for all items except those caused by misuse, neglect, or damage in transit. Games are returned prepaid freight by STAID.

After 1 year, games are to be returned as above except that all repairs will be made for \$60.00.