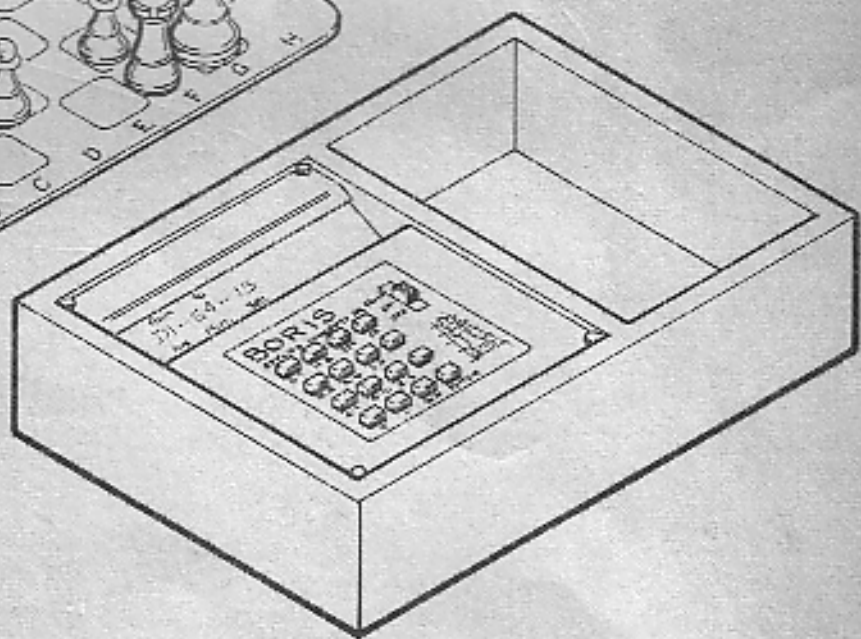
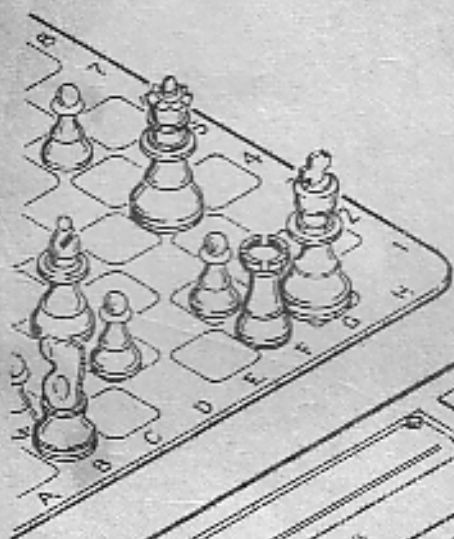


APPLIED CONCEPTS, INC.

ELECTRONIC CHESS GAME

BORIS



**INSTRUCTION
MANUAL**

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I The Game of Chess

The game

Chess is the classic game of maneuver and control. It is played on an 8x8 board between two players, each with initial armies of 16 *pieces* set up as shown (Figure 1):

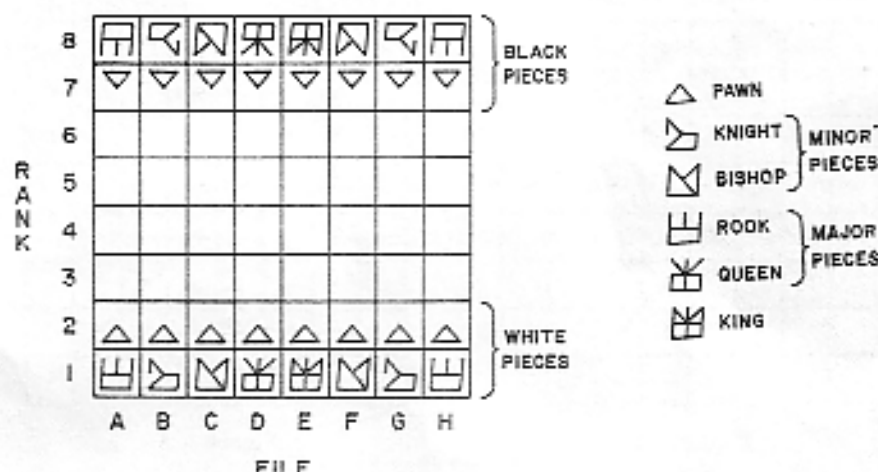


Figure 1

The players take turns, starting with White, each moving one piece per turn with the goal of capturing the enemy king. Only one piece can occupy a square at a time, and an enemy piece may be captured by occupying its square and removing it from the game.

The eight columns or *files* of the board are lettered A-H and the eight rows or *ranks* are numbered 1-8 as shown. Each square is identified by its file and rank; thus the Black King is initially on square E8.

The pieces

There are six kinds of pieces as shown, each with its own pattern of movement:

The Pawn, represented by an arrowhead, can advance along its file in the direction of its arrowhead one square per turn onto an unoccupied square, as shown by the solid arrow in Figure 2. It is, however, able to capture an enemy piece diagonally ahead of it, as shown by the dotted arrows, and is the only chess piece to move and capture differently. The pawn is the foot soldier of chess, needing support from the other pieces to advance safely, but vital in holding territory. See also Double Advance, En Passant, and Queening below.

The Knight, represented by a horse, moves obliquely, 2 squares laterally and 1 to either side, as shown in Figure 2. It does not travel directly over any other

squares and therefore cannot be blocked, making the Knight ideal for behind-the-lines raids. It is worth about three pawns.

The Bishop, represented by a miter, moves diagonally any number of empty squares as shown in Figure 2. It may capture an enemy encountered on the diagonal, but cannot continue beyond an occupied square. A Bishop can never encounter its brother since they are confined to squares of opposite color, but it is a nimble piece, able to cross the board in a single move. It is worth about three pawns.

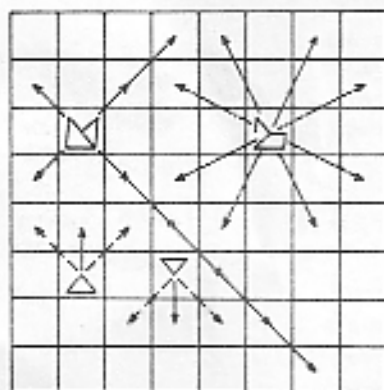


Figure 2

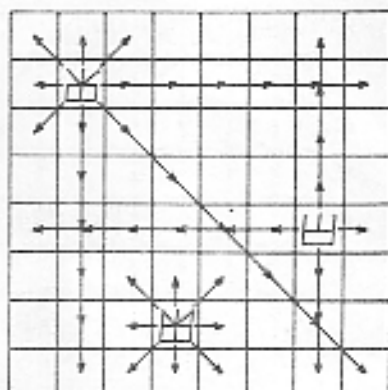


Figure 3

The Rook, represented by a castle, moves laterally any number of empty squares as shown in Figure 3. It may capture any enemy encountered, but cannot continue beyond an occupied square. Although too valuable and confined to risk in the opening game, it is a powerful piece, able to force checkmate of a lone enemy king. It is worth about five pawns. See Castling below.

The Queen, represented by a diadem, moves diagonally or laterally any number of empty squares as shown in Figure 3. It combines the moves of Bishop and Rook and is the most powerful piece by far, but must be used carefully since its uncompensated loss is generally fatal. It is worth about nine pawns.

The King, represented by a crown, moves one square in any direction as shown in Figure 3. It is vulnerable to attack if exposed, but must nonetheless be ready to play an active role once the major pieces have been captured. It is of course invaluable; any other piece must be sacrificed if necessary to save the King. See Castling below.

If a player moves so that he could capture the enemy king with his next move, the king is said to be in *check*, and it is customary to warn the opponent of this. It is illegal for a player to expose his own king to check, or to leave it in check when it can be saved. If it cannot be saved, the check is *checkmate*, and the game is then ended before the king is actually captured. A game is considered a draw if neither player can proceed to checkmate. A player must move when it is his turn, but if every move would expose his king to capture and thus be illegal, the game is considered a *stalemate* or draw; achieving this may be the strategem of last resort for a losing side.

Special moves

To improve the pace of the game, the following special moves have been added:

Double Advance and *En Passant*. For faster development, a pawn may advance two squares, provided they are unoccupied, from its initial position. However, this is not intended as a move to bypass an enemy pawn that would have been able to capture had a single advance been made. In such a situation (Figure 4), the double advance is permitted, but the opponent has the *en passant* option, for his next turn only, of returning the pawn to a single advance and capturing it there.

Queening. If a pawn successfully reaches the opposite edge of the board, it is promoted to any other piece, except a duplicate king. The choice is usually a queen, and this dramatic increase of power makes the advance and *queening* of a pawn the critical feature of the end of many games.

Castling safeguards the king while centralizing the rook. If a previously unmoved rook can move next to the previously unmoved king and be unattacked there, the player may place the king on the other side of the rook (Figure 5). Castling out of check is not permitted.



Figure 4

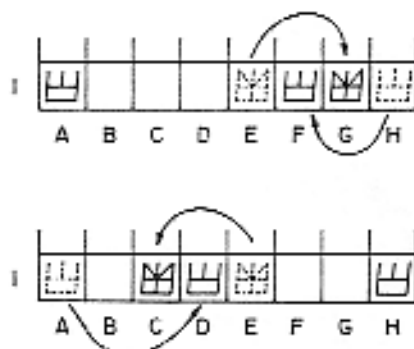


Figure 5

II Basic Operation

Playing a game with BORIS

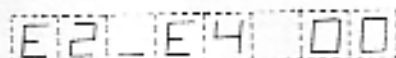
1. Plug in the unit and set up the chessboard.
2. Switch BORIS on, sliding the switch to RESET and releasing. BORIS will display BORIS PLAYS BLACK, and then show:



The 00s refer to the optional timer (see Special Features). The hyphen shows the side to move, — for the near or White side and — for the far or Black side. Since White moves first, BORIS is awaiting your move.

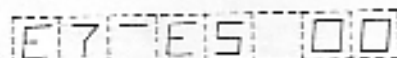
3. Each square on the board is identified by its file letter and rank number. Move your piece on the board and key in the square you moved from, immediately followed by the square you moved to, using the double-purpose [A.1] through [H.8] keys.

Example: After advancing your king pawn two squares, press [E] [2] [E] [4]



4. Check that the display shows your move correctly. If there is an error, clear entry, using [CE] and start over.

5. When the display is correct, enter it using [ENTER]. BORIS will flash the display while he is computing, then show his response. Example:



Note the hyphen shows this is a move for Black. Move BORIS's piece, and enter your next move as in step 3. Do not press [CE] or [ENTER] before entering your move; BORIS will automatically clear the display and reverse the hyphen when you start to enter your move.

BORIS may comment on your moves occasionally, and will show CH or MT at the right of the display when he checks or mates you. If you make an ILLEGAL MOVE, BORIS will so indicate and refuse to enter it. This feature is useful for catching inadvertent errors in entering a move, as well as correcting novice players.

If you checkmate BORIS he will display CONGRATULATIONS. To start a new game, slide the switch to RESET position and release.

Entering special moves

Queening. BORIS automatically turns a pawn into a queen when it reaches its far rank. You can override this if you wish; see Underpromotion in the Special Features section.

En Passant. Enter the move of your capturing pawn. Provided it was just advanced two squares, BORIS will automatically remove his captured pawn.

Castling. Enter the move for the king only; BORIS will automatically move the appropriate rook. Thus E1__C1 describes queenside castling, and E1_G1 describes kingside.

Sample game

The following shows the start of a game with BORIS. BORIS is designed to vary his play, so he will not always respond with these moves.

Operation	Display	Description
Power-On		After "BORIS Plays Black"
[E][2] [E][4]		Player advances King Pawn
[ENTER]		BORIS offers Queen Pawn
[E][4] [D][5]		Player captures Pawn
[ENTER]		BORIS recaptures with Queen
[B][1] [C][3]		Player threatens with Knight
[ENTER]		BORIS retreats and checks
[F][1] [E][2]		Player interposes Bishop
[ENTER]		BORIS develops King Knight
[G][1] [F][3]		Player develops King Knight
[ENTER]		BORIS develops Queen Knight
[E][1] [G][1]		Player castles, Kingside

III Special Features

Recalling the board

You may recall BORIS's internal board at any time by using the [RANK] key. This steps through the board from rank 1 to rank 8, showing the rank number while pressed, and the pieces in position on that rank while released. The symbols used are described in Section I. The display returns to showing the move following rank 8.

Modifying the board

Any piece can be added to or removed from the board as follows:

1. Step up to its rank using the [RANK] key.
2. Step across to its square using the [—] key. This advances the hyphen one square when pressed. After reaching the rightmost square, the hyphen returns to the left.
3. Change the color represented by the hyphen using the [B/W] key as necessary; note the hyphen will form the base of the new piece. The [B/W] key will invert the hyphen, displaying it while pressed, and may be used to find the hyphen without advancing it.
4. Create the new piece using the [^] - [M] keys. The [0] key erases a square. The hyphen is advanced to the next square automatically.
5. Return to step 1 or 2 for further modifications. When finished, exit by pressing [ENTER].

Changing sides

If you wish to play Black, simply use the [B/W] key to invert the hyphen to the Black position when you enter your move. BORIS will then compute a response for White. To obtain BORIS's first move, press [ENTER] without keying in a move.

You may change sides in the middle of a game if you wish, or even have BORIS play against himself by pressing [ENTER] repeatedly.

Correcting blunders

If you wish to change your last move after seeing BORIS's response, you may move your piece back to its original square by the procedure above. BORIS does not perform his move until you enter your response, and cancels his move whenever you change the board. You may then enter your new move instead. Be sure the hyphen is set for your side after restoring the board.

Illegal moves

If BORIS appears to make an illegal move, you and he have probably read a move differently. Use the [RANK] key to view BORIS's board and restore the position

before the error occurred. Set the hyphen to your side, key in your move if it is your turn, and press [ENTER] to proceed correctly.

If BORIS rejects your move as illegal, again be sure you and he do not disagree on the position. Remember BORIS will not permit you to move your king into check or leave him there. Also, BORIS will not allow you to move his pieces unless you change sides, so be sure the hyphen is positioned for your side of the board. Of course, if you really have no legal moves, BORIS has stalemated you and the game is a draw.

Playing from a position

You may set up an arbitrary position by entering the pieces rank by rank. To erase the initial position quickly, use the [CE] key to clear an entire rank. Set the hyphen for your side, key in a move if it is your turn, and press [ENTER].

Setting the timer

BORIS can perform a deeper analysis, up to four moves ahead for each side, if you give him more time using his built-in 100-hour timer. To set the timer, press [SET]. This displays the current interval in hours, minutes, and seconds, initially 00 00 00. This may be changed to the desired time interval using the [0] - [9] and [L] keys, and entered by pressing [ENTER]. This resets the timer to the new interval, and the seconds may be seen counting down in the right of the display. Example: To set 30 seconds, press

[SET] [0] [0] [0] [0] [3] [0] [ENTER]



With the above interval, BORIS will almost always find any mate in one.

When you enter a move, the timer is reset and BORIS will compute a response at successively deeper levels until his time is exhausted. He may return ahead of time if he finds a forced win or loss to the game. He will automatically proceed to a deeper analysis as the number of moves to be considered is reduced by the progress of the game.

To recall the entire timer, press the [TIME] key. This displays the hours, minutes, and seconds remaining while pressed.

To recall the interval without resetting the timer, press [SET] [RANK] [ENTER]

Stopping BORIS

To stop an analysis ahead of time, press [SET] [CE] [ENTER]

This clears the interval and the timer and causes BORIS to respond with the best move from his last complete analysis.

Giving BORIS more time

To keep BORIS working on an analysis, you may modify the interval and reset the timer while he is computing as above, or reset the timer to the same interval again by pressing [SET] [ENTER]

Playing against the timer

You will notice that BORIS resets the timer to the current interval when he re-

turns with a move. The timer is now timing you, offering you the challenge of replying before it reaches zero. If you do not respond in time there is no penalty; it simply means you are not moving in the time you allow BORIS.

Seeing BORIS compute

When you set the timer for an appreciable time, you will see various moves flashing in the display. These are the best moves BORIS has found so far at his current level of analysis. If you recall the board while BORIS is computing, you will see him moving the pieces around, trying the effects of the various moves.

Asking BORIS again

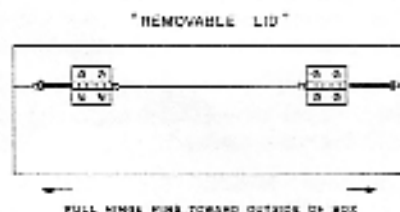
BORIS is designed to provide some variety in his play in a position where he has several equally good responses. You may ask BORIS to compute again on a position, to see if he responds differently, by pressing [CE] [B/W] [ENTER]

This cancels his move, returns the hyphen to your side, and tells him to recompute on the same position.

Underpromotion

If you want to advance and promote a pawn to a lesser piece than a queen, you may perform your move by modifying the board. Press any move entry key to tell BORIS you accept his last move, then modify the board to remove your pawn on the seventh rank and create the promoted piece on the eighth rank. Then press [ENTER] to tell BORIS to compute his response.

Hinge Removal

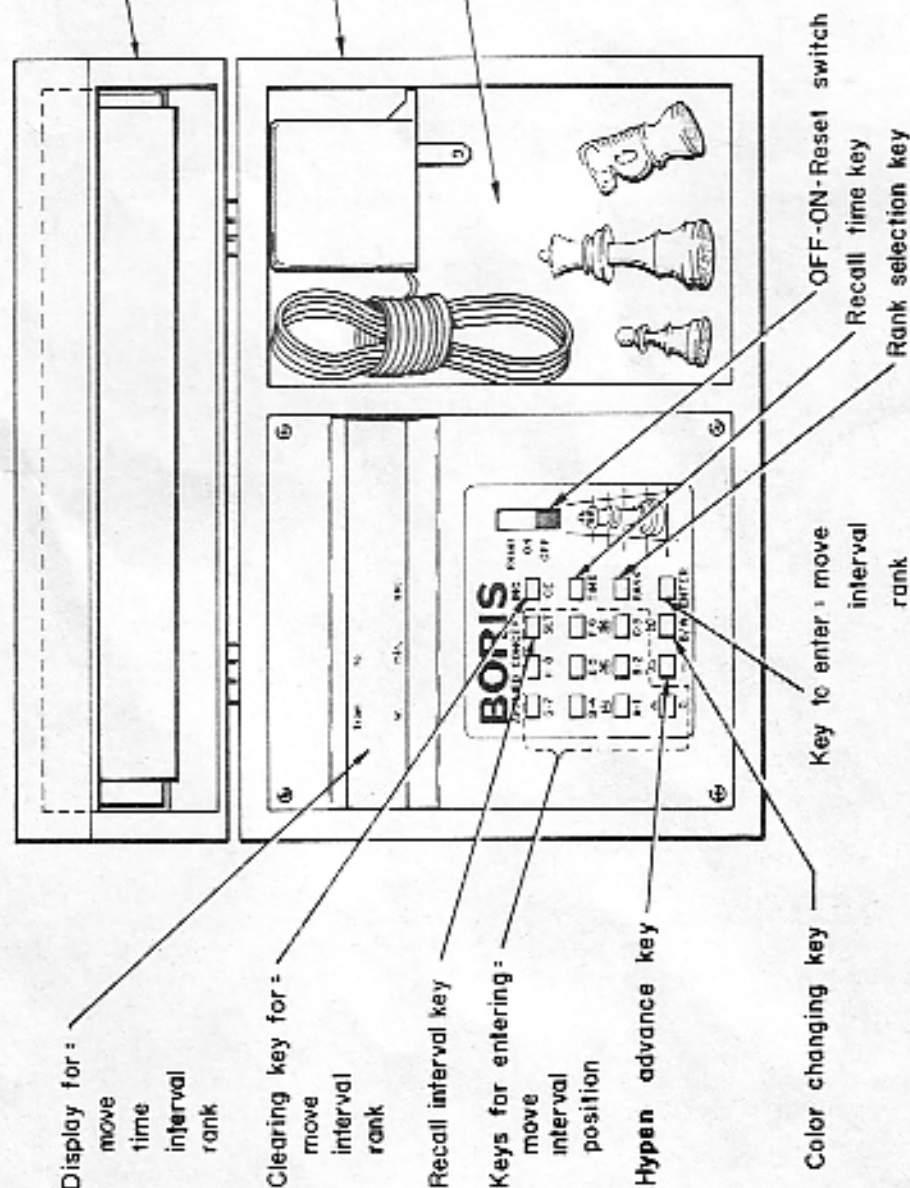


Factory service

If BORIS does not perform as described and you are following the instructions, try using a different electrical outlet.

Play verification may be made by letting BORIS play himself as described in the changing sides paragraph. Verify that he makes legal moves for both sides. If a problem is still encountered, record the events leading to the problem and contact the factory by mail or phone.

APPLIED CONCEPTS, INC.
P.O. Box 2582
Garland, Texas 75041
(214) 234-1317



BORIS PLAYS BLACK

....or Whiteor both

Expert or novice the challenge is yours with BORIS... Computer Chess. Mind game technology for in-home use.

- **Programmable Timer** — Allows adjustment of the level of play to match player skill. As time is increased, the level of play improves.
- **Programmable Positioning** — Allows you to position the chess pieces at any starting positions. Very handy for mid-game strategy study.
- **Handicapping** — Particularly handy for beginners. You may program Boris to spot (remove) any piece you wish for handicapping.
- **Illegal Moves** — Boris checks for illegal moves and rejects them by stating "ILLEGAL MOVE".
- **Alpha-numeric Display** — An 8 digit alpha numeric display allows full rank display and allows Boris to talk to you. Examples: "BORIS PLAYS BLACK", "ILLEGAL MOVE", "GOOD MOVE", "HAVE YOU PLAYED BEFORE", "CONGRATULATIONS",....etc.
- **Standard Notation** — Boris uses standard chess notation.
- **Castling** — Boris both castles and recognizes castling.
- **En Passant** — Boris both recognizes and uses En Passant.
- **Queening** — Boris automatically queens when the pawn reaches the 8th rank.
- **Color Selection** — Boris can play black or white or both. Yes, Boris can even be made to play himself.
- **Rank Display** — Boris displays pieces in each rank as symbols rather than numbers, making editing easy. Recognizable at a glance.
- **Player in Check** — Boris denotes CHECK by displaying "CH" in the seconds location.
- **Player in Checkmate** — Boris denotes CHECKMATE by displaying "MT" in seconds location.
- **Varied Play** — Boris does not follow a set pattern or make the same moves each time. His program is designed to choose from the best moves he can find in the amount of time he is given.
- **AC Power** — Boris operates on only 8 watts of 117VAC Voltage. No batteries to leak, run down or replace.
- **Warranty** — Boris has a 90 day limited warranty.
- **Handcrafted Case** — Solid walnut, hand rubbed case. Chessboard and chessmen included.

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Below are a few suggestions to help you get the most enjoyment from your friend, BORIS.

SELECTING YOUR LEVEL

The more time you give BORIS to think, the smarter he is. Therefore, you can easily select the level of play by programming the timer. Some suggested levels are as follows:

- Level A - Do not set timer. BORIS will automatically respond at his minimum response time. At this level, BORIS leaves himself open for your attack, giving you many opportunities to defeat him. A good beginner's level.
- Level B - 30 seconds. Defeating BORIS at this level indicates you have a good understanding of basic strategy.
- Level C - 2 minutes. Good competition for an average player.
- Level D - 5 minutes. Challenging competition for an accomplished player.
- Level E - 30 minutes plus. A game that will keep a master's attention.

WATCHING BORIS THINK

While BORIS is scanning the board for his best move, you will see the moves he is contemplating flashed on his display. He will ~~finally select the best move he has reached when his response time~~ has elapsed. Press the rank button as he is thinking and you can watch him moving the pieces while he is scanning for his best move. If he reaches his decision while you are still using the rank key, he will automatically override the rank control and display his decision.

NOTE

BORIS users have experienced games where BORIS will indicate an illegal move when the player feels certain that the entry is valid. When the ranks are verified, pieces appear in positions where they seem not to belong. Obviously, this could be caused by a malfunction of BORIS' computer; however, thru extensive testing we have determined that players have not read the display correctly during previous moves. BORIS' special display is designed to be viewed from directly in front of it. If you look at the display from an angle, it is possible to misread a board position and you will move a piece incorrectly. This will result in "ILLEGAL MOVE" to be displayed at some future move because the computer has the pieces at one position and you have them at another.

BORIS' computer circuits generate heat and the front metal panel is designed to act as a heat dissipator. It is normal for this front panel to become very warm. CAUTION: Do not close BORIS' cover when power is ON. Excessive heat will build up in this closed case.