BORIS
ELECTRONIC CHESS COMPUTER

I EXPECTED THAT

from to
hrs min sec

BORIS
APPLIED CONCEPTS, INC.

RESET
ON
OFF

G·7 H·8 SET·9 CE

D⬚4 E♟5 F♞6 TIME

A♟1 B♜2 C♝3 RANK

0 B/W ENTER

BORIS IS KING

BORIS
BORIS IS KING ©

OPERATION MANUAL

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I THE GAME OF CHESS

The history of chess

In the fifth century A.D., a game called "chaturanga" made its appearance in historical records in northwestern India. "Chaturanga" as it was played then is easily recognizable, with few differences, as our modern chess. The game spread west into Persia, and from thence along the ancient trade routes to the shores of the Mediterranean, reaching Europe by about 1000 A.D. The Norman Conquest brought chess with it into England; the Spanish soldiers and French explorers introduced it first into the New World of the Americas. By the 17th century chess had developed the exact form we enjoy today, although slight rule variations have been added, and fashions in strategy continue to change from decade to decade.

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):
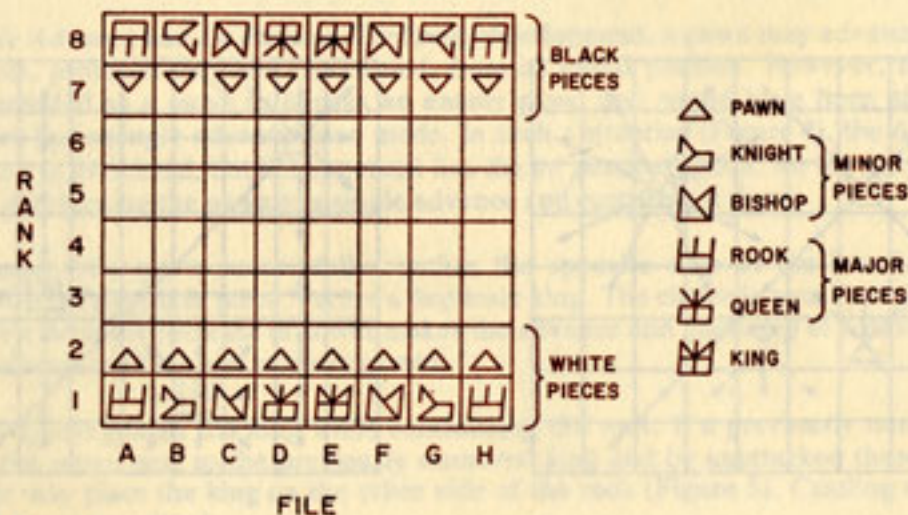

Figure 1

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 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:

II BASIC OPERATION

Your BORIS unit

BORIS has been designed for ease and flexibility of operation, using the most dependable circuitry available. He should provide you with many hundreds of hours of chess enjoyment. Here are several things you should know in order to get the most out of BORIS:

BORIS's display and many of his internal components produce heat. The metal faceplate was designed to help dissipate heat, and it is normal for it to become warm in operation. However, do not leave BORIS computing with the cover closed. This will cause excessive heat buildup, and may damage your unit.

BORIS's power adapter is a small transformer. It is normal for it to be slightly warm and emit a low volume buzzing sound when in use. If you are interrupted during a game, you may leave BORIS switched on for several days safely, as long as the cover is left open. BORIS will be ready to continue as soon as you are.

BORIS's distinctive case is solid walnut. Each case is unique in grain and coloration, and should be treated like any piece of fine furniture; occasional polishing or oiling will preserve BORIS's beautiful lustre.

Playing a game with BORIS

1. Plug in the unit and set up the chessboard.

2. Switch BORIS on, sliding the switch to the "reset" position. BORIS will display BORIS PLAYS BLACK or BORIS AWAITS YOUR MOVE, depending on the model you own. BORIS will then show:

```
 _|_ _|_ _|_ _ _|‾|‾|
|_ _|_ _|_ _|_ _ |_||_|
```
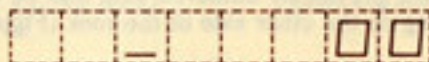
The OOs refer to the timer (see Special Features). The hyphen shows the side to move, __ for the near, or White side, and ‾ for the far, or Black side. Since BORIS plays Black, he is waiting for you to move.

3. Each square on the chessboard is identified by a file letter and a rank number. Note BORIS's keyboard has keys identified with both letters (A-H) and numbers (0-9). These keys give BORIS the file-rank coordinates for your moves. Six of these keys are also identified with BORIS's special chess piece symbols. The piece symbol keys are used in advanced play to modify BORIS's internal chessboard (see Modifying the Board in the Special Features section).

Move your piece on the chess board, and key in the square you moved from, immediately followed by the square you moved to, using the multi-purpose keys.

Example: After advancing your king pawn two squares, press these four keys

[E] [2] [E] [4]

```
|‾||‾| |‾||‾|  |‾||‾|
|E||2|_|E||4|  |0||0|
```
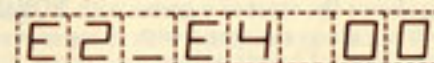
4. Check that the display shows your move correctly. If there is an error, clear the entry, using [CE] and start over.

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

```
|‾||‾|‾|‾||‾|  |‾||‾|
|E||7|‾|E||5|  |0||0|
```
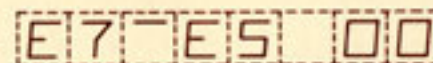
Note that BORIS will not always make the same response. The hyphen here indicates this is a move for Black. Move BORIS's piece, and enter your next move as in step 3. Do not press [CE] or [ENTER] before entering your move; BORIS will automatically clear the display and reverse the hyphen to your side when you start to enter your move.

BORIS may comment on your moves occasionally, and will show CH or MT at 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. After displaying ILLEGAL MOVE, BORIS will re-display the move coordinates for you, so you can note why it is illegal. Press [CE] to clear; then enter a legal move. This feature is useful for catching inadvertent key stroke errors as well as correcting novice players.

If you checkmate BORIS, he will display CONGRATULATIONS. To start a new game, slide the switch to "reset" and release.
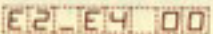
Entering special moves
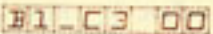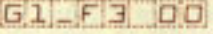
Queening. BORIS automatically turns a pawn into a queen when it reaches its far rank. You can override this if you wish; see Underpromotion in the Special Features section.

En Passant. Enter the move of your capturing pawn. Providing his pawn 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. BORIS tells you in a similar fashion when he has decided to castle. Note that BORIS cannot remember past moves. If king or rook have been moved from their original positions, but later moved back, he will not indicate ILLEGAL MOVE when you or he castle.

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	`[ ][ ][ ][ ][ ][ ] 00`	After "BORIS Plays Black"
[E] [2] [E] [4]	`E2-E4 00`	Player advances King Pawn
[ENTER]	`D7-D5 00`	BORIS offers Queen Pawn
[E] [4] [D] [5]	`E4-D5 00`	Player Captures Pawn
[ENTER]	`D8-D5 00`	BORIS recaptures with Queen
[B] [1] [C] [3]	`B1-C3 00`	Player threatens with Knight
[ENTER]	`D5-E6 CH`	BORIS retreats and checks
[F] [1] [E] [2]	`F1-E2 00`	Player interposes Bishop
[ENTER]	`G8-F6 00`	BORIS develops King Knight
[G] [1] [F] [3]	`G1-F3 00`	Player develops King Knight
[ENTER]	`B8-C6 00`	BORIS develops Queen Knight
[E] [1] [G] [1]	`E1-G1 00`	Player castles, Kingside

III SPECIAL FEATURES

Setting the timer for advanced play

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]. BORIS now displays the current timer setting in hours, minutes and seconds. If it is other than 00-00-00, press [CE] to clear. Now key in your desired time setting using the [0] - [9] keys, and enter it into BORIS's timer using [ENTER] when it shows correctly in the display. As soon as the timer is set, BORIS will begin counting down the seconds in the right of the display. For example, to set BORIS to 30 seconds per move, press:

[SET] [0] [0] [0] [0] [3] [0] [ENTER] `00-00-30`

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

Longer intervals are set the same way. For example, to set 3 hours, 15 minutes and 10 seconds, press:

[SET] [0] [3] [1] [5] [1] [0] [ENTER] `03-15-10`
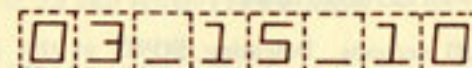
When you enter a move, the timer is reset, and BORIS will compute a response at successively deeper levels until his time is exhausted. He will automatically proceed to a deeper analysis as the number of moves to be considered is reduced by the progress of the game.

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

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

Stopping BORIS

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

This resets the timer to immediate response, and causes BORIS to respond with one of the best moves he has found so far.

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 returns 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 have allowed BORIS.

Selecting your level

BORIS can conduct a deeper analysis and respond with more subtle moves if you give him a longer computing time. Therefore, you can select a level of play by programming the timer.

Some suggested levels:

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.

When playing at the following levels, you may want to set the timer only after the opening moves have already been played, as these will vary little even with increased times.

B- 20 seconds. Defeating BORIS at this level indicates you have a good understanding of basic strategy.

C- 2 minutes. Good competition for an average player.

D- 10 minutes. Challenging competition for an accomplished player.

E- 1 hour or more. A game that should keep a master's attention.

Recalling the board

BORIS's internal processor automatically alters his internal board as you play, so that he always knows where all remaining pieces are. You may recall BORIS's internal board for display 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 when released. The symbols used are described in Section I. The display returns to showing the moves following display of rank 8.

Note that BORIS does not enter his latest move into memory until you begin to make your response. Therefore, if BORIS was last to move before you request rank display, his latest move will not be reflected in his internal board.

Changing sides

You may change sides with BORIS at any time during a game. This is useful if you want to use BORIS as a chess tutor, to see what he would do in your place, as an aid to analyzing positions, or just for fun. If you wish BORIS to play White from the start of a game, press [B/W] [ENTER] as soon as BORIS indicates he is ready to play. BORIS will then lead off with a move for White. If you wish change sides again, press [ENTER] after BORIS has suggested a move. His next move will be Black. You may change sides as often as you like.

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. Clear the rank if necessary using the [CE] key.

2. Step across to its square using the [__] key. The [__] starts in file A and advances one square when pressed. After reaching the right-most square, the hyphen returns to the left.

3. Change the color of the piece located at the hyphen by using the [B/W] key if necessary; note the hyphen will form the base of the new piece. The [B/W] 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 [△] - [♛] keys. The [0] key erases the piece on a square. The hyphen is then advanced to the next square automatically.

5. Return to step 1 or 2 for futher modifications. When finished, return to playing mode by pressing [ENTER].

This modifying procedure can be used to correct an inadvertent error on your part, to set up a particular chess problem, such as a mate in two problem, or to play out a variation on any game. For example, to set up BORIS for the mate in two problem below, follow this sequence:

White to mate in two
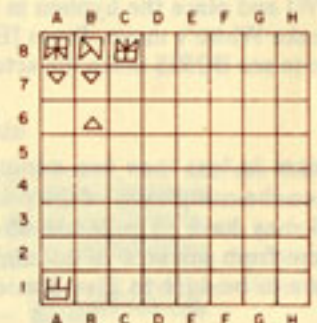
1. Switch BORIS on.

2. Press [RANK] to display the pieces set up on rank 1. Since you need to remove most of the pieces, press [CE] to clear the entire rank. Then press the [⊞] key, creating a white rook on A1.

3. Press [RANK] to advance to the second rank, then [CE] to clear the entire rank. Press [RANK] repeatedly to advance to the sixth rank.

4. The hyphen is now used to locate pieces on the desired file. On each file, the hyphen starts out in the left-most square. Pressing[__] moves the hyphen to the right. Remember that the [B/W] key can always be used to locate the hyphen without moving it. Press [__] once to advance to file B on rank 6. Press [△] to create a pawn on B6.

5. Press [RANK] to advance to the seventh rank. Press [CE] to clear the rank. Press [B/W] to indicate that you now want to enter the Black pieces. Enter the two Black pawns by pressing [△] twice.

6. Press [RANK] to advance to the eighth rank, then [CE] to clear off the rank. Enter the Black king and bishop with the [♚] and [�झ] keys. Press [B/W] to indicate that you now want to enter a White piece. Press [♚] to enter the White king.

7. Press [RANK] again to exit from rank mode and return to play.

8. Set the timer. BORIS will solve any mate in two problem, but the time it may take him varies. To be sure to allow enough, set the timer for a generous interval of several hours. As soon as BORIS has found the mate sequence, his display stops flashing on the move that leads to mate.

To see the solution, press [B/W] and place the hyphen in the upper position. Press [ENTER] to allow BORIS to make White's move. Press [ENTER] again for Black's response, then [ENTER] again to see BORIS make the actual move for checkmate.

Note: BORIS solves this problem in less than two minutes. Other problems may take much longer, depending on the complexity of the position. In order to solve a mate in two problem, BORIS may have to generate and evaluate thousands of moves. This will take anywhere from minutes to hours; thus we suggest setting BORIS's timer to several hours to be sure to give him enough time to solve the particular problem.

Playing from a position

You may use the modifying technique to set up an arbitrary position, entering the pieces rank by rank as above. Set the hyphen for your side after completing changes, key in a move if it is your turn, and press [ENTER].

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 using the modifying procedure. BORIS does not perform his move until you enter your response, and cancels his last move when you begin to change the board. Modify the board to reflect your new move, and be sure the hyphen is set for your side after any changes are complete. Press [ENTER] to request BORIS's new response and continue the game.

Using BORIS as teacher

This feature is especially useful for students learning to play chess. Simply switch BORIS on, press [B/W] then [ENTER]. Press [ENTER] repeatedly, and BORIS will make moves for one side, then the other. BORIS will continue to play both sides as long as you keep pressing [ENTER]. A student can watch the way the pieces move, see which moves seem to work well, and which lead to disaster.

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 last move, returns the hyphen to your side, and tells him to recompute on the same position as before.

Watching BORIS compute

While BORIS is analyzing the board, you can see the moves he is contemplating flashing in the display. He will select the best move he has reached when his response time has elapsed. Press [RANK] while he is thinking, and you can watch him moving the pieces while he is searching for his best move. If he reaches a decision while you are still holding [RANK] he will automatically override the rank control and display his move.

Illegal moves

If BORIS appears to make an illegal move, you and he have probably read a move differently. During play, be sure to wait for BORIS to display his responses before you move his pieces; do not try to anticipate him, even on the most obvious capture moves. BORIS may not have chosen an obvious move, and second-guessing may cause problems later in the game.

BORIS's 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 move a piece incorrectly. This will result in ILLEGAL MOVE displayed at a valid later move, because the computer has the pieces at one position and you have them at another.

When illegal move confusion occurs, use the [RANK] key to view BORIS's board and restore it to the position before the error occured. 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 allow you to move your king into check or leave him there. Also, BORIS will not allow you to move his pieces unless you use [B/W] to change sides, so be sure the hyphen is set 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.
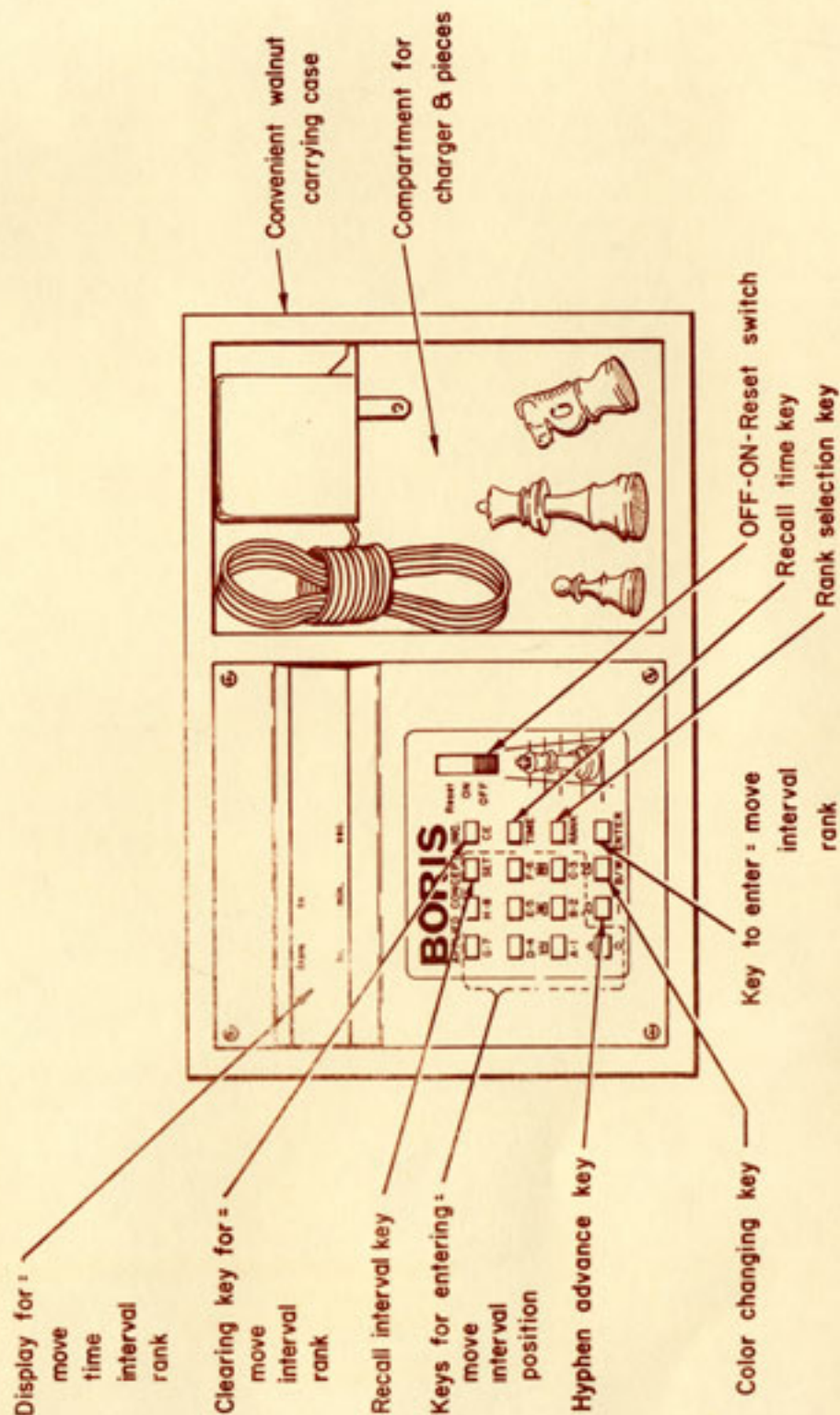
Underpromotion

Boris automatically promotes a pawn to a queen when it reaches the eighth rank. 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.

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 against himself as described in the instructions above. Verify that he makes legal moves for both sides. If a problem is still noted, record the events and moves leading to the problem and contact the factory by mail or phone.

BORIS SERVICE CENTER
P.O. Box 2582
Garland, Texas 75041

- Convenient walnut carrying case
- Compartment for charger & pieces
- OFF-ON-Reset switch
- Recall time key
- Rank selection key
- Key to enter : move interval rank
- Display for : move time interval rank
- Clearing key for : move interval rank
- Recall interval key
- Keys for entering : move interval position
- Hyphen advance key
- Color changing key

IV SPECIAL FEATURES OF BORIS MASTER

Basic operation

BORIS MASTER units operate with the same simple procedures as BORIS; however, BORIS MASTER incorporates valuable additional features.

To begin a game, move the off-on switch to "on" position. To reset for a new game, move switch to "off" and then back to "on".

Battery power

You can play chess anywhere with BORIS MASTER, using the built-in rechargeable batteries. BORIS MASTER will operate on battery power for up to seven hours of play, or will hold a position in memory for up to five days without having to be recharged, providing batteries are fully recharged at the start.

Batteries indicate the need to recharge by dimming of the display, showing inconsistent brightness in the display, or losing sections of display characters. When any of these occur, you have only a few minutes before game memory will be lost. Switch BORIS MASTER to the "Memory" position immediately, and recharge as soon as possible before continuing play.

To recharge, simply plug the power adapter into the jack and connect to any standard 110 volt wall outlet. BORIS MASTER will recharge while play, or you can leave him to recharge with the off-on switch at the "off" postition. The batteries will fully recharge in 12 hours.

Using the memory

BORIS MASTER has a unique memory feature which allows you to interrupt and resume games at any time. BORIS MASTER holds a chess position attained in memory for as long as he is provided with power, either through his battery, or through the adapter. This allows you to move BORIS MASTER from place to place during a game, save an interesting position to show friends, or extend battery life.

If you wish to interrupt a game but not terminate it, you must do so only *after* accepting one of BORIS's moves, and *before* making a move of your own. Indicate to BORIS that you have accepted his latest move by pressing any of the move entry keys. Then slide the off-on switch to the "Memory" postition. BORIS MASTER's display will go blank. When you wish to resume play, slide the switch to "on", and BORIS will display BORIS AWAITS YOUR MOVE. You may take up play with your next move exactly where you left off.