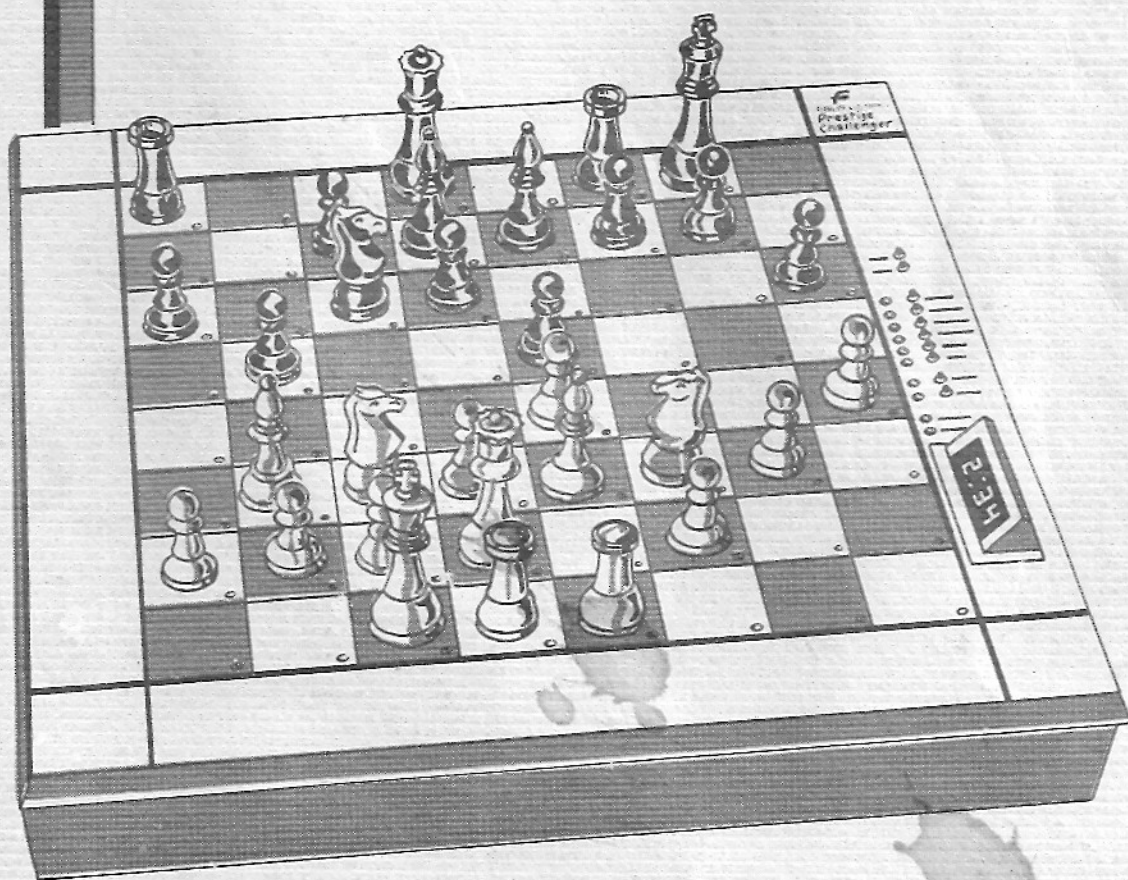


PRESTIGE CHALLENGER[®]

OWNER'S MANUAL
INSTRUCTION BOOKLET

MODEL PC



QUALITY MADE IN U.S.A.

WELCOME TO THE FUTURE...

Fidelity Electronics, the world's leading manufacturer of microprocessor-based board games, proudly brings you the Prestige Challenger. The Prestige epitomizes the most advanced state-of-the-art technology and craftsmanship available anywhere in today's commercial markets of the world. The beautifully designed and quality constructed cabinet houses a superb playing program and an amazing array of special features—many of them never before available.

The full size chess board has an automatic response playing surface which consists of specially designed reed switches located underneath each square, actuated by magnets in the bases of the chess pieces. Thus, moves are made just as they would on any ordinary chess board, with no special attention needed to inform the computer.

Your Prestige Challenger is a very versatile and talented opponent that is capable of competing at the club or tournament level yet allows you to select and control the level of difficulty to match your own skill and experience.








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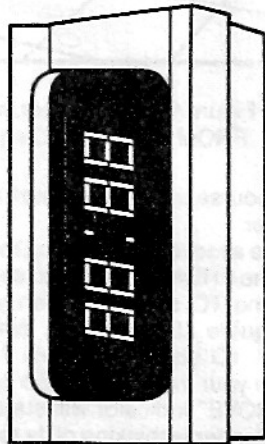
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INSTRUCTION MANUAL PRESTIGE CHALLENGER

SECTION I—BASIC OPERATION

KEYS INDICATORS & DISPLAY

- RESET**
- 
- Piece Identifiers** {
-  **● PB**
 -  **● PV**
 -  **● TM**
 -  **● ST**
 -  **● TB**
 -  **● LV**
- DM**
- CL**
- RV**
- YOUR MOVE**
- CHECK**



RE—RESET KEY: Used to enter Game Control Mode. Does NOT reset game for a new start. See Section II, SPECIAL FEATURES

Speaker icon—SOUND MODE KEY: Used to enter the sound Control Mode.

PB—PROBLEM MODE KEY: Permits player to set up special move situations.

PV—POSITION VERIFICATION KEY: Used to verify positions of all pieces.

TM—TIME CONTROL KEY: Used to show time for side currently making a move.

ST—SWITCH TIME KEY: Used to switch display to show time for the opponent.

TB—TAKE BACK KEY: Takes back a move. See Section II, SPECIAL FEATURES, for full description.

LV—LEVEL KEY: Used to enter the Level Select Mode.

DM—DISPLAY MOVE KEY: Causes Challenger to recommend a move or to show its next move. See Section II, SPECIAL FEATURES.

CL—CLEAR KEY: Used to clear unwanted move. Several other uses. See Section II, SPECIAL FEATURES.

RV—REVERSE KEY: Used to change sides with Challenger. Several other uses. See Section II, SPECIAL FEATURES.

INTRODUCTION

The instructions contained in this manual describe how to operate and communicate with your Prestige Challenger, and do not relate to the actual playing strategies of the game of chess. For the beginner, a handy booklet entitled "Let's Play Chess" is provided with the game.

The auto-response playing surface, light emitting diodes (LED's), voice and beep tone are all used for communication between the human player and Prestige Challenger.

Section I provides all the information you will need to play a game of chess. Subsequent sections are devoted to the many special features and control functions: Section II—Special Features, Section III—Option Controls, Section IV—Mate and Draw Announcement, and Section V—General Information.

The many special features and play options will certainly enhance playability and your enjoyment of Prestige Challenger; however, it is recommended that you familiarize yourself with Section I—Basic Operation before starting to play, and get into the added features when you are comfortable with the basic operation.

THE GAME BOARD

Set up the chess pieces with the black pieces at the top of the board. Each square on the board is described, in accordance with international chess notation, by a letter of the alphabet identifying the vertical rows (Files) and a number identifying the horizontal rows (Ranks). When the game is about to begin, the White King is on square E1; the Black King on square E8.

POWER ON

To turn power on, plug the transformer into an AC wall outlet and plug the transformer line cord into the game's power cord. To turn power off, unplug the game and remove the transformer from the AC wall outlet.

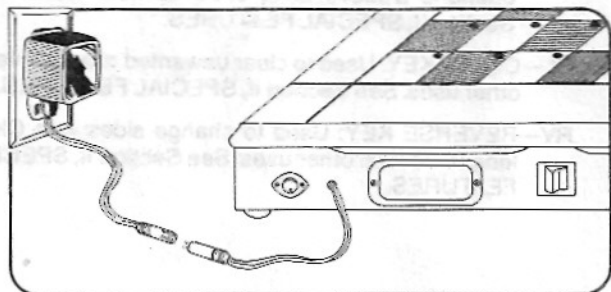


Figure 1-1. Power

When power is first turned on, the voice will announce, "I AM FIDELITY'S CHESS CHALLENGER, YOUR COMPUTER OPPONENT." Playing Level A1 is automatically selected, and the chess clocks remain at zero until the first move is made. None of the options or special controls are activated. A new game is started when power is turned on. Turning power off and then on again automatically resets the program to pre-game conditions and removes all previously selected options.

Before the first move is made, the desired level and game control options may be selected. Refer to the appropriate sections for option descriptions.

For lengthy games, power may be left on, as the Prestige is all solid state and is designed to be left on for long periods of time, as desired.

GAME STAGE INDICATION

When Prestige Challenger is first plugged in, or when Game Control Options D8 or D6 are activated, the display

will show a GAME STAGE indication.

The Game Stage indication is provided as a reminder to the human player when it is an appropriate time to plug in a particular book opening cartridge, if desired. The Game Stage display applies to the present book opening cartridge provided with the game, and to future book opening cartridges as they become available. There are three Game Stage indications.

GS:0—When Challenger is first plugged in, the display shows GS:0, which is a reminder to plug in the Book Opening cartridge.



GS:1—When the book opening moves are ended, the display shows GS:1, for one move, which is a reminder that the built-in Mid-Game cartridge is in effect. When a more advanced mid-game cartridge is available, the advanced cartridge may be plugged in at this time.



GS:2—This indication is a reminder that the built-in End-Game cartridge is going into effect. When a more advanced end-game cartridge is available, that cartridge may be plugged in at this time.



If no cartridges are to be used, simply ignore the Game Stage indications and proceed with the game.

THE PLAY

Playing chess against Prestige Challenger is like playing against a human opponent—you make your move and Challenger responds with its move. The obvious differ-

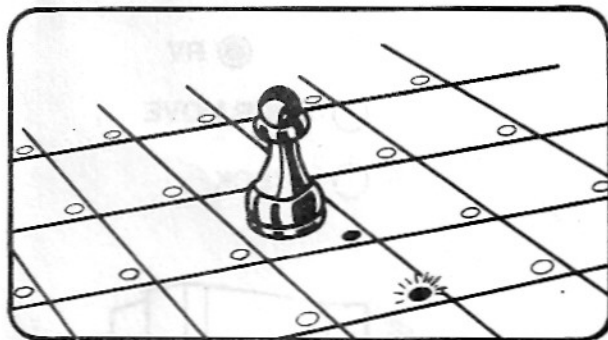


Figure 1-2. Challenger indicates move. FROM square lit, TO square flashing.

ence, of course, is that you must move the piece for the Challenger.

To make a move, simply lift up the piece from its original square (the FROM square) and set it down on the desired square (the TO square). When you lift your piece, the FROM square LED will light. When you set your piece down, the TO square LED will flash and the voice will announce your move. Both LED lights will go out and the "YOUR MOVE" indicator will start to flash. This signifies that Challenger is thinking of its response.

When Challenger is ready to move, the desired piece

— the FROM square — LED will light and the TO square LED will flash. Pick up the piece Challenger wants to move and place it on the flashing TO square. Both LED's will go out, signifying that it is now your move again. The "YOUR MOVE" indicator will be lit.

NOTE: Always pick a piece off a square and place it on another square. Do not slide from one square to another when capturing.

ACCIDENTAL WRONG MOVE

If you lift a piece off the board to make a move but change your mind before the move is completed, simply replace the piece on its original square.

If you change your mind about a move after the move is completed, you must use the Take-Back feature after Challenger has completed its response move. This means that you will have to take back Challenger's last move and then your last move.

ILLEGAL MOVE

If an illegal move is made, both the FROM and the TO square LED's will remain lit, the display window will show four dashes (----), and the voice will repeatedly announce "ILLEGAL MOVE." To undo the illegal move, simply return the piece to its original FROM square and replay a legal move. The LED's and voice announcements will cease immediately, but the display indication will remain until the next legal move is completed.

POSITION VERIFICATION

You may verify the positions of all pieces—both White and Black—at any time before or during a game, whenever it is your turn to move. To verify the position of any piece type, first press the PV Key, and then press the key next to the picture of the piece you wish to verify. All squares with pieces of that type will light; squares with White pieces will be lit continuously, and squares with Black pieces will flash.

You may continue verifying piece locations by pressing other piece type keys. To terminate Position Verification, press the CL Key.

CASTLING

Challenger will recognize your castle maneuver. When you move your King, the voice will announce the castle and the LED's for the Rook move will light to remind you to complete the maneuver.

Challenger will castle by first lighting the King's move (move the King), and then lighting the Rook move. The voice will announce "CASTLE KING."

EN PASSANT

Challenger will capture a Pawn En Passant whenever it deems such a move is desirable, and will also recognize when you choose to do so. When performing an En Passant capture, Challenger will first indicate the Pawn move in the usual way, by first lighting the FROM square and then the TO square; then it will light the square of the captured Pawn to remind you to remove it. Simply pick up the captured Pawn and remove it.

PAWN PROMOTION

As in a normal game of chess, when a Pawn reaches the eighth rank, it may be promoted to a higher valued piece. When your Pawn reaches the eighth rank, Challenger will flash the square it stands on, and the voice will announce "PROMOTE PAWN" until you identify your selection by pressing the appropriate piece identification key on the Keyboard (e.g., the key next to the symbol for the Queen). You may now proceed with play.

When Challenger's piece reaches the eighth rank, the voice will announce the promotion, e.g., "PROMOTE TO A QUEEN."

CHECK AND MATE

When Challenger has you in a CHECK situation, the CHECK indicator on the Keyboard will light, and the voice will announce "CHECK."

When Challenger determines that you are soon to be mated, the board lights up in distinct patterns, as described in SECTION IV—MATE AND DRAW ANNOUNCEMENT. If the entire board is lit, then you are in CHECKMATE. If less than the whole board is lit, the indication is that you will be mated within a specific number of moves, as described in SECTION IV—MATE AND DRAW ANNOUNCEMENT. When less than the entire board is lit and you desire to continue play to the inevitable mate, press the CLEAR Key to extinguish the LED's. Challenger will then light its move in the usual way.

When Challenger loses, the entire array of LED's on the board will flash continuously.

If you see the board LED's light in the shape of a triangle, the game is a draw or Challenger is offering you a draw. For specifics, refer to SECTION IV—MATE AND DRAW ANNOUNCEMENT.

BOOK OPENINGS

If you have the PC-16 Module plugged in, you may notice that at the beginning of the game, Challenger seems to move very quickly. The reason for the fast response is that Challenger contains a library of over 16,000 opening positions from grandmaster play. If a current board set-up is in Challenger's library, it will quickly play one of the proper responses to that position and will not have to "think" about that move choice. If desired, you can survey what Challenger has in its library and actually select the opening line of play for yourself. To do so, refer to the paragraphs on the DM and RV Keys in SECTION III—SPECIAL FEATURES

SECTION II—SPECIAL FEATURES

RV REVERSE KEY

CHANGING SIDES: The Reverse pushbutton has several different uses, depending on when you press it. Pressing the RV Key when it is your turn to move changes sides with Challenger. Challenger will take over your pieces and make a move. For example: Suppose you are White and it is your turn to move. If you press RV, Challenger will make the move for White. You may now continue to play Black until RV is pressed again. By alternately pressing RV after each move by Challenger, you can watch Challenger play itself.

STOPPING CHALLENGER'S THINKING: Pressing the RV Key when Challenger is thinking will force Challenger to make its move immediately.

OPENING BOOK LINE SELECTION: The RV Key can be used to select a particular opening line from Challenger's opening library. To do this, wait for Challenger to announce its move. Now, instead of entering that move in the usual way, press the RV Key. Challenger will display another move choice (if another choice is available). By continuing to press RV, you can see all of the choices available to Challenger.

RECOMPUTE NEXT BEST MOVE: If Challenger is *not* playing from its book opening library, you can use the RV Key to force Challenger to use its next-best move instead of the one it selected. To do this, press the RV Key after Challenger has announced its selected move, but before you physically move the actual piece. Now Challenger will reconsider its position and, ignoring its previous move selection, will respond with its next-desirable move. You may repeat this forcing operation as many times as you desire until all possible moves for Challenger are exhausted. When no other move possibilities remain, Challenger will simply repeat its last move each time the RV Key is pressed.

DM DISPLAY MOVE KEY

Like the RV Key, the Display Move Key has different uses, depending upon when you press it.

DISPLAYING MOVE NUMBER: Each time the DM Key is pressed, the display window shows the current move number.

DISPLAYING SUGGESTED MOVE: If you press the DM Key when it is your turn to move, Challenger will recommend a move for you to play. If you are playing from Challenger's opening book (see the paragraph on Book Openings in SECTION I—BASIC OPERATION), the suggested move will be from Challenger's book. If you press the DM Key again, Challenger will show you another book choice (if another choice is available). You can continue pressing DM to see all of the book choices that Challenger recommends in the current position.

If it is your turn to move and you are no longer "in book," pressing the DM Key will still give you a recommended move, but only one move choice will be available.

DISPLAYING MOVE CHALLENGER IS CONSIDERING MAKING: When it is Challenger's turn to play, pressing DM will display the move Challenger is currently thinking of making. The move will be shown on the board LED's. Both the FROM and TO squares of the move will flash. Once you have pressed DM while Challenger was thinking, it will continue to show you the move it is considering. If Challenger changes its mind about the best move, a new move will begin to flash on the board. When Challenger makes its move and you make your response,

Challenger will automatically resume showing you what it is thinking. You need never press DM again to continue to look into Challenger's mind. To cancel this feature, press the CL Key while Challenger is thinking.

DISPLAYING PRINCIPAL VARIATION: You can ask Challenger to show you its anticipated best line of play by pressing the DM Key after Challenger has announced its move but before physically moving the piece. By repeatedly pressing DM, up to eight ply of anticipated future moves may be shown. The number of moves shown varies, depending upon the length of time Challenger had to consider its move.

TB TAKE-BACK KEY

The Take-Back feature allows taking back a move made by Challenger or a move made by the player.

The Take-Back feature can be used whenever it is your turn to play. To use the Take-Back feature, press the TB Key. Challenger will light the last piece moved. Pick up that piece—the light in that square will go out and the square to which the piece should be returned will be lit. Replace the piece on the lit square. The lights will go out. You have completed the take-back of that move. Pressing TB again allows taking back your move. Press again for Challenger's move, then yours, etc. You may continue taking back moves, moving each piece in turn, or you can go on after any take-back to continue play.

TAKING BACK A MOVE WHILE "IN BOOK": If the game is still in the opening book (see SECTION I—BASIC OPERATION), taking back one or more moves will not disable the opening library. Moves will continue to be played from book. While in book, you can take back as many moves as you wish, even all the moves back to the beginning of the game.

TAKING BACK A MOVE IN NORMAL PLAY: During normal play—that is, when out of book—you can take back up to 40 ply (a ply is a move by either you or Challenger).

TAKING BACK CAPTURES AND A CASTLING MANEUVER: After taking back a capture move, Challenger will identify the piece that should be replaced by lighting the LED on the keyboard next to the piece symbol.

A castle move take-back is slightly different than for all other pieces. In this case, the King LED lights as for other pieces, but the Rook must be replaced to its original square first, before the King is moved.

FORCING CHALLENGER TO MAKE A MOVE OF YOUR CHOICE: If you have just taken back one of Challenger's moves, you may now have Challenger move again by pressing the RV Key, or if you wish, you may choose a move for Challenger. Challenger will accept your choice without complaint and let you go on from there making your next move. Making Challenger's move after a take-back will not result in changing sides. If you are playing white, you will still have the white pieces.

PB PROBLEM MODE KEY

Problem Mode permits you, the player, to alter the board set-up at any time before or during a game. By using Problem Mode before starting a game, it is possible to set up various chess problems and mate puzzles, as desired. Additionally, by using Problem Mode during game play, it is possible to alter the direction of the game, strengthen your side or Challenger's side, resurrect lost pieces, or even

move your King out of an imminent checkmate situation. You may enter the Problem Mode whenever it is your turn to play.

To learn how to use Problem Mode, try the following practice drill:

1. Start a new game and set the pieces on the board in their initial positions.
2. Press the PB Key. You are now in Problem Mode. Note that the White King's indicator light on square E1 is lit continuously, and the Black King's indicator light on square E8 is flashing. This means that Challenger recognizes that the White King is on square E1 and the Black King is on square E8.
3. Lift the King and replace it on square E1. Note that the square E1 indicator light is now flashing—Challenger thinks that a Black King is on that square. Remove the King—the indicator goes out and the computer recognizes there is no King on square E1. Replace the King on square E1 once more and Challenger is back to thinking that a White King stands on that square.

Therefore, by the above illustrations, it is seen that:

1. No indicator lit means no piece of that type on that square.
2. Steadily lit indicator means White piece of that type on that square.
3. Flashing indicator means Black piece of that type on that square.

To set up the pieces in any arrangement you desire, you need only:

1. Press PB.
2. Press the key next to the picture of the piece type you wish to change.
3. Make changes as follows:
 - a. Place a piece on an empty square and it becomes a White piece.
 - b. Lift and replace a White piece and it becomes a Black piece.
 - c. Remove a piece and it becomes an empty square.

To exit Problem Mode, press the CL Key.

CL CLEAR KEY

The CLEAR Key is used to clear an illegal move; to terminate Position Verification and Problem Mode; and to exit Level Control Mode, Game Control Mode, and Sound Control Mode. The CLEAR Key is also used to turn out all LED indicators except when a move is being indicated during normal game play.

RE RESET KEY

The RESET Key is used only to enter the Game Control Mode (see SECTION III—OPTION CONTROLS).

LV LEVEL KEY

The LEVEL Key is used to enter the Level Control Mode (see SECTION III—OPTION CONTROLS). LV may also be used, while Challenger is thinking, to display its current level of search, as shown in the illustration below.



Number of the Move Being Searched Ply Being Searched

M SPEAKER KEY

The SPEAKER Key is used to enter the Sound Control Mode (see SECTION III—OPTION CONTROLS).

TM TIME DISPLAY KEY

DISPLAYING ELAPSED TIME: Pressing and releasing the TM Key causes the display to show the elapsed time taken for the current move. Pressing and holding the TM Key causes the display to show the total elapsed time used in the game thus far. The times that are shown are for the player currently making a move. To see the other player's time clock, see the section on the ST Key.

DISPLAYING REMAINING TIME IN COUNT DOWN MODE (LEVEL B2 ONLY): Pressing and releasing the TM Key causes the display to show the time remaining for the game for the player currently making a move. Pressing and holding the TM Key causes the display to show the time used thus far on the current move.

ST SWITCH TIME KEY

Pressing the ST Key after just pressing the TM Key, switches the clock display to show the time for the other player. The clock display will remain switched until another TM Key, ST Key pressing sequence is performed, or until a move is made. The small dot between the double digits of the clock display indicates which player's clock is being displayed. A lower dot means it is your chess clock, and an upper dot means it is your opponent's.

SECTION III—OPTION CONTROLS

Prestige Challenger has many special option features that are available to the user. These features are described under three general categories: LEVEL OPTION CONTROLS, GAME OPTION CONTROLS, and SOUND OPTION CONTROLS.

The option controls are user selectable (before the start of a new game, or at any time during play) and can be activated by means of various squares on the playing surface when one of three select modes is invoked. When a select mode is chosen, normal game play is suspended and the squares are used to select options as shown on the chart in Figure 3-1.

In the following option descriptions, the user is directed to "activate" a given square to select a particular option. The procedure for activating a square is as follows:

1. An option square is activated when the LED in that square is lit.
2. If the square is occupied by a piece, lift the piece off and replace it. The LED in the square will light to indicate that option is selected.
3. If the square is empty, select any piece (either a captured piece from off the board or a piece not located within the particular option group you are working with). Place the piece on the desired square and then remove it—again, the LED in the square will light to indicate that particular option is selected.

Note: Option Control Modes can only be invoked when it is your turn to play.

LEVEL OPTION CONTROLS

To invoke the LEVEL OPTION CONTROLS, press the LV Key when it is your turn to move, or before a game begins. You are now in Level Control Mode. The display window will show —LC— and one of the LED indicators in File A or B will be lit to show the level that is presently in force.



After first turning on the game, for instance, square A1 would be lit, indicating that Level One is in force. Figure 3-1.

To make a level selection, proceed as follows:

1. Press LV when it is your turn.
2. (Assume that you desire skill level four). Activate square A4. Only one level selection can be made at any given time.
3. Press the CL Key to lock in your choice and to exit the Level Control Mode. The display will return to showing time.

SKILL LEVELS (A1-A8)

When Challenger is first plugged in, skill level A1 is automatically selected. You can change levels at any time during a game or before the start of a new game. (NOTE: Pressing the RESET Key does *not* start a new game and does not change the current level.)

The eight skill levels are described in the following chart, Figure 3-2.

CHESSE LEVEL	AVERAGE RESPONSE TIME	ACTUAL TIME CONTROL
A1	5 seconds	60 moves/5 minutes
A2	15 seconds	60 moves/15 minutes
A3	30 seconds	60 moves/30 minutes
A4	1 minute	60 moves/1 hour
A5	2 minutes	30 moves/1 hour
A6	3 minutes	40 moves/2 hours
A7	3 min 45 sec	40 moves/2½ hours
A8	6 minutes	30 moves/3 hours

Figure 3-2. Chess Level Time Chart

NOTE: Because the human player is required to physically move the pieces for Challenger, all time controls are programmed to allow 12½ percent of the total human time for making Challenger's move.

SPECIAL LEVELS (B1-B7)

The following special B-Levels are for the enthusiast, the experimenter, or the serious tournament player. Each B-Level is described individually.

B1—INFINITE MODE: Level B1 allows no limit to the time used in making each move. Challenger will continue to search, looking deeper and deeper until it finds a forced mate or until the search is halted by you. When halted, Challenger will make the best move it has found thus far in its search. You can halt Challenger's thinking at any time by pressing the REVERSE (RV) Key.

B-2—COUNT DOWN MODE: Level B2 allows you to pre-set a specific time limit for the game. A different time can be set for you and for Challenger, allowing handicapping in either direction.

During the game, the display clock shows the time remaining for the player in process of making a move. To review the time already used for that player, press and hold the TM Key (refer to TM Key description in SECTION II—SPECIAL FEATURES).

To pre-set time limits, invoke the Level Control Mode and activate square B2. Time selection is made first for the human player and then for Challenger. When B2 is activated, the clock will show time for the human player. In the following example, Figure 3-3, the clock shows the letter H, which stands for Human, and three digits which stand for hours and minutes.

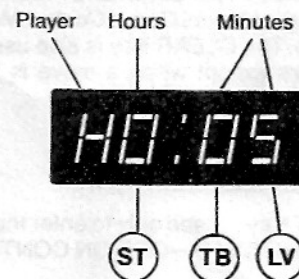


Figure 3-3. Display Clock Readout

The three keys shown in the illustration serve temporary duty as time-setting controls during this process: The ST Key sets hours; the TB and LV Keys set minutes. To set time, press each of the keys, one at a time, until the desired time is indicated. Each digit will count up each time its respective key is pressed until nine, then it resets back to zero. For example, suppose you want two hours and thirty minutes:

LEVEL 8 6 MINUTES A8	B8	C8	POWER ON START D8	EASY MODE E8	F8	G8 ON	H8 OFF	VOICE
LEVEL 7 3 MINUTES 45 SECONDS A7	FIXED TIME SEARCH B7	C7	CLEAR BOARD D7	BOOK PRACTICE MODE E7	F7	G7 ALL	H7 LESS	
LEVEL 6 3 MINUTES A6	PROBLEM SOLVING LEVEL B6	C6	NEW GAME D6	PLAYER MODE E6	F6	G6 HI	H6 LOW	
LEVEL 5 2 MINUTES A5	FIXED DEPTH NON ITERATIVE SEARCH B5	C5	CHANGE COLOR WITH MOVE D5	FIGURINE ALGEBRAIC E5	F5	G5	H5	BEEPER TONE
LEVEL 4 1 MINUTE A4	FIXED DEPTH ITERATIVE SEARCH B4	C4	CANCEL OPENING BOOK D4	DISABLE NOTATION REVERSAL E4	F4	G4 ON	H4 OFF	
LEVEL 3 30 SECONDS A3	USER SELECTABLE TIME CONTROL B3	C3	D3	SCORE DISPLAY E3	F3	G3 ALL	H3 LESS	
LEVEL 2 15 SECONDS A2	COUNT DOWN MODE B2	C2	D2	RESIGN ENABLE E2	F2	G2	H2	
LEVEL 1 5 SECONDS A1	INFINITE LEVEL B1	C1	DARK FROM BOTTOM D1	AUTOMATIC LV KEY E1	F1	G1	H1	
LEVEL CONTROLS			GAME CONTROLS		SOUND CONTROL			

Figure 3-1. OPTION CONTROLS

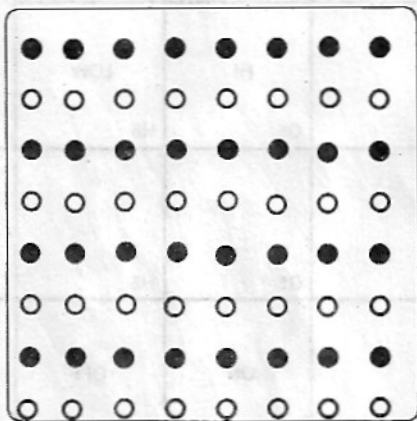
1. Press ST two times. The display reads H2:05
2. Press TB three times. The display reads H2:35
3. Press LV five times. The display reads H2:30
4. You have now set your time limit.

To set time for Challenger, activate square B2 a second time—display clock will show C0:00. Use the same above procedure to set Challenger's time. You can change the value of any of the digits in any order.

When time setting is complete, press the CL Key to lock in your selections and to exit the Level Control Mode.

To review the time settings, reenter the Level Control Mode and reactivate square B2, first to view your time and again to view Challenger's time.

When the preset time has elapsed for Challenger, and the game is not over, Challenger will light the board in an alternate, flashing pattern as shown below.



Preset time has elapsed for Challenger

When the preset time has elapsed for the human player, the clock display shows -9:59 and the board lights in an alternating solid pattern.



Preset time has elapsed for human player

B3—USER SELECTABLE TIME CONTROL: Level B3 allows you to set your own specific time controls, wherein a certain number of moves must be completed within a certain time limit. For example, 40 moves in two hours. The selected time limitations apply for both you and for Challenger—that is, you have two hours for 40 moves and Challenger also has two hours for 40 moves.

DO NOT USE B3 for times averaging less than five seconds per move. For faster speeds, use Fixed Time Mode B6.

As in typical tournament play, if the specified number of moves are completed before the end of the allotted time, a second time limit is set if the game is not yet over and, if needed, a third block of time is allowed. These time blocks are referred to as Primary time, Secondary time, and Tertiary time. Whereas the Primary time may allow 40 moves in two hours, the Secondary time typically may allow something like ten moves in 30 minutes. The Tertiary time is usually the same as Secondary time.

The B3 option allows you to set any combination of time/number of moves for all three time blocks—Primary, Secondary, and Tertiary.

To set the time controls, activate square B3. The display clock will show Primary time. The P stands for Primary.



To reset digit values, use these keys.



The three digits can be set using the same keys as described for B2. NOTE: If 90 minutes are desired, the clock may be set to read 90, or it may be set to read one hour and 30 minutes P1:30. It makes no difference to Challenger. Activate square B3 a second time (lift and replace the piece) and the clock will show the number of Primary moves. Again, the ST, TB, and LV Keys are used to set the digits.



Activate square B3 again, and the display will show Secondary time.



You may now set your desired Secondary time. Activate square B3 still again, and the clock will show Secondary moves. Activating square B3 once more will display Tertiary time. To designate Tertiary time, the display's left-most digit looks like an inverted letter L (Γ) since the display segments do not lend themselves to a T configuration. NOTE: If the Tertiary time setting is left at zero, the Secondary time control will be repeated. No moves are set for Tertiary time. If a non-zero time is entered for the Tertiary time control, Challenger automatically assumes that the remaining moves will be completed in that time.



To simplify, the B3 time settings are made in the following sequence:

- | | |
|----------------------|-----------------------|
| 1. Activate B3 | —Set Primary time. |
| 2. Activate B3 again | —Set Primary moves. |
| 3. Activate B3 again | —Set Secondary time. |
| 4. Activate B3 again | —Set secondary moves. |
| 5. Activate B3 again | —Set Tertiary time. |

After Tertiary time has been set, press the CL Key to lock in the time settings and to exit the Level Control Mode.

To review the selected times at any time in the game, enter the Level Control Mode and activate square B3 in the sequence described previously. Reviewing these settings, or pressing RESET, does not alter the settings.

B4—FIXED DEPTH ITERATIVE SEARCH: Level B4 is not used for normal game play. It is provided for the chess computer hobbyist who likes to experiment. To use this level effectively, requires some background and understanding of a chess computer's thinking process. The method used is commonly referred to as an Iterative Search. Following is a simplified description of how the Iterative Search is implemented by Challenger's computer. Incidentally, the search is not necessary while moves are still being made from book.

The term "ply" refers to one move made by one side—light or dark. Thus, in a game, a move made by one player and the response move by the opposing player constitutes two ply. To further illustrate: A player is faced with the possibility of moving any one of several pieces. The player considers the effectiveness of the move for each piece, in turn, and then moves the piece which presumably will bring the best results. This process of selecting the most advantageous of several possible pieces with which to make the move, constitutes a one-ply search. The opposing player goes through a similar process to make his best move. This also constitutes a one-ply search.

Taking this process one step further, when the first player deliberates on his board positions and selects his best move, he has completed a one-ply search. If, instead of actually moving his piece, the first player now considers what would be his opponent's best move as a response, the first player is said to have conducted a two-ply search.

Continuing on, if the first player considers what his response would be to his opponent's response to the player's original move, the player has now conducted a three-ply search. And so on, and so on!

Thus each player, when considering any given move, can conduct a search (an Iterative Search) to any depth—to any number of plies—limited only by the player's capacity to remember, his patience, and the amount of time available. No one will argue that, for most people playing against a computer, the computer has the advantage in memory capacity, patience, and speed. Speed is important because time is usually the greatest limiting factor in conducting an Iterative search.

When Challenger is faced with making a move, it automatically begins an Iterative Search. In normal game play, Challenger is presumably playing against a time limit. The computer will therefore budget its time so that, as the Iterative Search goes deeper and deeper, the search will stop when cutoff time is reached. At that point, Challenger will play the best move found so far.

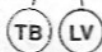
Level B4 provides an alternative to time-based cutoff. Using Level B4, you can pre-set the ply depth. Challenger will then conduct an Iterative Search to the pre-set depth and then stop and make its move. Time is ignored. For example, if a fixed depth Iterative Search of four-ply is selected, Challenger will:

1. Perform a one-ply search.
2. Perform a two-ply search.
3. Perform a three-ply search.
4. Perform a four-ply search.
5. Make the move.

Ply-depth can be selected as follows: When B4 is activated, the display will show the current ply-depth.



To reset digit values, use these keys.



The ply-depth is indicated by the two right-most digits in the display. The digit values can be changed using the TB and LV Keys, as shown above. Thirty-two is the maximum depth to which Challenger's program can search. Although the display can be incremented to a larger value, up to 99, the search will only be conducted to 32 ply. It should be remembered, when using this B4 capability, that time is ignored and there is no guarantee that the depth you request can be attained within the time that you are willing to wait.

You can terminate the Fixed Depth Iterative Search at any time you desire by pressing the RV Key. Challenger will make the best move it has found to that point.

Press the CL Key to lock in your choice and exit the Level Control Mode.

B5—FIXED DEPTH NON-ITERATIVE SEARCH: Level B5 is also provided for the chess computer hobbyist or experimenter. It is not used for normal play. Knowledge of Iterative Search, as described in the preceding B4 discussion, is essential for working with Level B5.

Level B5 provides a Non-Iterative Search, as opposed to the Iterative Search. They differ as follows:

Suppose Challenger is set to perform a two-ply Iterative Search. Using the Iterative Search technique, Challenger would first perform a one-ply search, find the best move, and then perform a two-ply search for a best move.

In the Non-Iterative Search, Challenger skips the one-ply search and goes straight to the two-ply search. No best move is found until the entire two-ply search is completed.

An interesting aspect of the Non-Iterative Search is that, if the search is prematurely terminated (by pressing the RV Key) and Challenger is forced to make a move, that move is less likely to be a good choice, as opposed to premature termination of an Iterative Search. The reason, of course, is that in Iterative, a "best choice" is made at each ply level, whereas in Non-Iterative the choice is made at the very end.

To select this level, activate B5. The display will indicate ply depth as in B4. The two right-most digits can be changed as in B4. Press CL to lock in the depth and exit the mode.

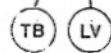
B6—PROBLEM SOLVING: Level B6 is used for solving chess mating problems. Mating problems are usually of the form "white to move and mate-in-two" or "white to move and mate-in-three." Sometimes black gets the first move, but the primary factor is the required number of moves to achieve mate.

Level B6 is used in conjunction with the Problem Mode, where the Problem Mode is used to set up the piece configuration and B6 is used to set the specified number of moves to achieve mate.

To select this level, activate square B6. The display will show the number of moves until mate.



To reset digit values, use these keys.

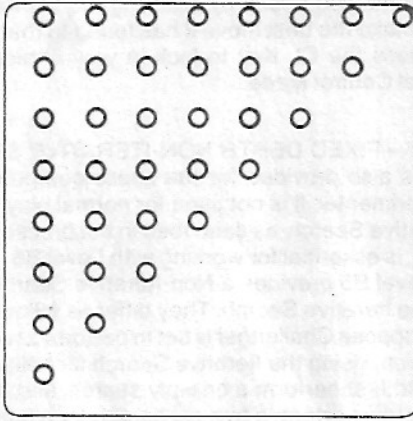


Theoretically, up to Mate-in-16 problems can be solved, but it is questionable that anyone would be willing to wait the amount of time required for a solution.

To change the digit values to the required number of moves, use the keys as described above. Press the CL Key to lock in the value and exit the B6 Level. Press the RV Key to have Challenger play white.

You can check for alternate solutions (called "COOKS") by using the Next Best Move feature described in Section II.

If no mate or cook is found in a given position, a triangle in the upper left corner of the board will light up. This indicates no mate possible at that particular depth.



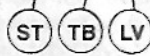
B7—FIXED TIME SEARCH: Level B7 is provided for the chess computer experimenter. Challenger has a built-in clock that allows it to strictly adhere to whatever time control has been set. Most pre-set time controls allow a specific block of time during which a specified number of moves must be made, but the time used for any given move may vary.

Level B7 allows the experimenter to pre-set a precise amount of time in which to make a move. Thus, Challenger will conduct its search for that length of time exactly and stop. It will make its best move found to that point. The search for each separate move will consume the exact same amount of time.

To select this level, activate square B7. The display will show the amount of time for a move.



To reset digit values, use these keys.



The time is set in minutes and seconds, to a maximum of 9 minutes, 99 seconds. A minimum of one second must be allowed.

To change the time, use the digit keys as described above. Press the CL Key to lock in the time and exit the Level Control Mode.

SOUND OPTION CONTROLS

Your Prestige Challenger is equipped with two separate sound systems: A computer created voice and a beeper tone. Either the voice or the tone can be used independently, or both can be used together. The following diagram, Figure 3-4, shows the locations on the board that serve as sound selection controls during the Sound Control Mode.

	G	H
VOICE	ON	OFF
	ALL	LESS
	HI	LOW
TONE		
	ON	OFF
	ALL	LESS

Figure 3-4


NOTE: When Challenger is first turned on, certain sound settings are automatically selected: The voice will be ON, ALL, HI. The tone will be OFF, LESS.

You may select sound controls in any order for the exact combination of voice and tone desired.

VOICE—The voice can be turned (OFF) or (ON). If (ON) it can be set to announce all moves and all keystrokes (ALL), or it can be set to announce only function phrases such as "Check", "Checkmate" and "Illegal Move" (LESS). The voice can also be set to one of two volume levels: loud (HI) or soft (LO).

TONE—The tone can be turned (ON) or (OFF) independently of the voice. It can be set to beep on every move and keystroke (ALL) or just to announce Challenger's move (LESS).

To enter the Sound Control Mode, press the **SPEAKER**

 Key. The display will show that Challenger is in the Sound Control Mode, and lighted LED's in Files G and H will indicate the controls that are automatically activated at the present time.



To change the Sound Control settings, activate those squares that represent the desired settings, in the combination desired.

When you have completed making your selections, press the **CL** Key to lock in your choices and exit the Sound Control Mode.

GAME OPTION CONTROLS

Your Prestige Challenger provides an extensive array of game control options that allow more direct control of the computer than has ever before been available. By using the various Game Option Controls, you can utilize the computer's own capabilities in numerous ways to help you expand your own knowledge and playability of the game of chess. These options can be selected and/or altered at any time during a game when it is your turn to move.

It should be remembered that none of the control options you select will change unless you make the change, or if the unit is unplugged or if the **POWER ON START** option is selected.

To enter the Game Control Mode, press the **RE** Key. The display window will read:



You may now activate the desired Game Option Controls using the squares in Files D and E, as illustrated in Figure 3-1. File D contains Command Options. File E contains Mode Options. A lit LED in a square indicates that particular option is selected. If a square is not lit, that particular option is not selected.

If a square is not lit, activating the square selects that option. If a square is lit, activating the square cancels that option and turns off the light.

Press the **CL** Key to lock in your selections and to exit the Game Control Mode.

D8—POWER ON START: Using Option D8 is the same as unplugging the unit and plugging it back in again. All special option selections in Level Controls, Game Controls, and Sound Controls are returned to their initial values, just as they would be when you first plug in the unit. All initial start up procedures apply as they do when the unit is first plugged in. D8 may be used any time when it is your turn to move.

D7—CLEAR BOARD: Option D7 removes all the pieces from the board in Challenger's internal memory. This fea-

ture is handy for problem set-up (remember to physically remove the actual pieces from the board). D7 is generally used with Problem Mode.

D6—NEW GAME: Option D6 places all the chess pieces back on their original squares and prepares Challenger's internal computer for a new game. Clocks and move counts are set back to zero, but all previously selected options—Level Controls, Game Controls, and Sound Controls—remain as previously selected.

D5—CHANGE COLOR WITH MOVE: Option D5 is used primarily for changing the side to move after setting up a chess problem.

D4—CANCEL OPENING BOOK: Option D4 locks out the opening book. Challenger will determine its own best move from the first move of the game.

D1—DARK FROM THE BOTTOM: Option D1 allows you to play with the dark pieces set up at the bottom of the board. **NOTE:** Switching to this option during a game is not advised.

E8—EASY MODE: Option E8 weakens all skill levels without affecting time controls. In simple terms, this is accomplished by restricting Challenger's use of its allotted time. Ordinarily, Challenger does some of its thinking on your time—while you are contemplating your next move. With Option E8, Challenger is forced to think only on its own time.

E7—BOOK PRACTICE MODE: Option E7 allows you to use Challenger for drill on opening lines. Book Practice Mode allows Challenger to play a much wider range of move choices, including weak opening moves. In normal play, Challenger will not play a weak move, but will know the correct countermove if you should do so. In Book Practice Mode, however, Challenger may play a weak opening move so that you may learn the correct response.

In Book Practice Mode, Challenger will give you a warning if you attempt to play a move not in book or if you reach the end of book. If you enter a move not in book, Challenger will beep three times or announce "CLEAR MOVE" and give you an illegal move indication. You can then press **TB**, take the move back and try again to play one in book. When you reach the end of book, Challenger will warn you by beeping twice or announcing "CLEAR MOVE" and giving you an illegal move indication.

If you play a move that is not in book and Challenger asks you to take it back, you may, if you wish, force Challenger to accept it and go on playing from that position. To do so, simply press the **RV** Key after entering your move. Challenger will fall out of book and begin "thinking" about its response. If you force Challenger to accept a non-book move, you can get back into book by using the Take-Back feature.

E6—PLAYER MODE: Option E6 allows humans to play both sides. Challenger serves as a referee and checks each move for legality.

During this mode, each player may, when it is his turn, ask Challenger to suggest a next move by pressing the **RV** Key. If **RV** is pressed while the game is still in Challenger's opening book, Challenger will suggest a move from its book. If the game is out of book, Challenger will respond by computing a move at whatever playing level had been preselected.

Option E6—Player Mode can be used in conjunction with E7—Book Practice Mode to provide an excellent way to learn opening lines. When both are used with the Take-Back feature, multiple variations can be studied.

E5—FIGURINE ALGEBRAIC: Option E5 is useful only when the Challenger Printer is connected and turned on. It affects only the printout of the move list. When E5 is activated, the moves of the game are printed in FIDE Informant-Style Figurine Algebraic Notation. Moves are described by printing the piece symbol followed by the TO square of that move. Piece symbols for Pawns are not used.

READY CHESS CHALLENGER		
01	E4	E6
02	D4	D5
03	E5	C5
04	♠F3	♠C6
05	♚E3	♚C4
06	♙D4	F6
07	♙C3	♙D7
08	♚E2	♙B8
09	♙F6	♙F6
10	♙F6	♙F6
11	♙D2	♙G8
12	G3	♙E5
13	O-00	♙C5
14	♙H6	♙F8
15	♙H7	♙F2
16	♙HF1	♙C5

Example of Figurine Printout

Two departures from strict FIDE notation exist: (a) Queen-side castling is printed as O-00, due to space limitations on the move list; and, (b) when a piece is pinned against a King and cannot legally move to a given square, but another piece of the same type can and does move to the square, the move is printed as though it were legally possible for both pieces to move to that square. This results in over-describing that move on the printout.

E4—DISABLE NOTATION REVERSAL: Option E4 is used in conjunction with Option D1—Playing Dark from the Bottom. Without Option E4, playing dark from the bottom results in "notation reversal." That is, if the Dark King's Pawn is moved out two squares, the move would be announced as "D7 to D5" and, if the Printer was being used, the printout would be the same. This clashes with standard notation. By using the E4 Option with Option D1, the notation reversal is compensated by Challenger's computer—notation reversal is disabled—and the same move is announced "E2 to E4" which corresponds to the standard notation.

E3—SCORE DISPLAY: Option E3 is provided for those players who prefer some indication of the "relative score" or "advantage" as the game progresses. This is accomplished via the display window when the E3 Option is selected.

When Option E3 is activated, the function of the LV Key changes. While Challenger is considering its next move, pressing LV will cause the display to cycle between (1) level of search; (2) score in hexadecimal notation; and, (3) time. The score shown is made up of three elements (explained further in this text). The three elements consist

of (1) Material Value, (2) Positional Value, and (3) who has the advantage. The score is interpreted in terms of whether Challenger considers its position good or bad.

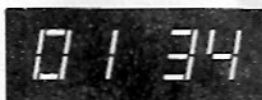
The left two digits show material balance. The right two digits show positional value.



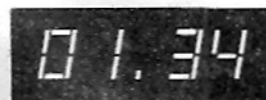
Material
Score

Positional
Score

The colon, in the center, shows who has the advantage. The colon is off when Challenger feels it has the advantage. The colon is lit when Challenger feels it is at a disadvantage. The numerical values indicate the extent of how good or how bad things are for Challenger.



Good for Challenger



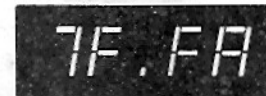
Bad for Challenger

Material scores are based roughly on the value scale of one point for a Pawn, three points for a Knight or Bishop, five points for a Rook, and nine points for a Queen.

If Challenger sees a mate, the material score will read "7F". If the colon is also lit, the mate is against Challenger.



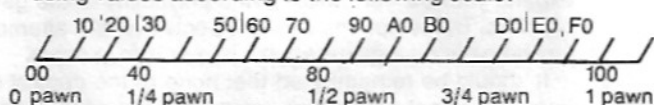
Mate against opponent



Mate against Challenger

POSITIONAL SCORE

The right two digits show the relative positional score using values according to the following scale:



Thus, for example, if you were to see the following score:



you would know that Challenger is ahead nearly a Pawn's worth of position; or it could mean that Challenger is ahead a Pawn, but behind positionally. In the latter case, the score would have been 100 for being a Pawn up, but the score dropped some because the position was no longer good.

The key to understanding this system of scoring is not to try and interpret in terms of conversion to decimal, but to develop a feel for how good or how bad the score is and in whose favor.

E2—RESIGN ENABLE: Option E2 causes Challenger to announce forced mates against itself, and to resign if it can see mate is inevitable. For details, see paragraph on Mate Announcement in the section on MATE AND DRAW ANNOUNCEMENTS.

E1—AUTOMATIC LV KEY: Option E1 changes the normal clock display (TM) to a level (LV) display, when Challenger is making its move. When this control option is selected, the level of search will be displayed while Challenger is thinking. For an explanation of the display, refer to SECTION II, LV KEY.

If the E3 Score Display Option has also been selected, the display will automatically cycle between level of search, score, and time during the time Challenger is thinking.

SECTION IV—MATE AND DRAW ANNOUNCEMENT

Challenger can indicate forced mates against the opponent, and (if Resign Enable was selected at the start of the game) against itself. Up to Mate-in-Seven can be indicated. In addition, Challenger can recognize and claim four different types of draws, can recognize and respond to an opponent's offer of a draw, and will itself propose a draw, if in Challenger's estimation, neither side possesses sufficient resources to force mate.

MATE ANNOUNCEMENT—AGAINST OPPONENT

When Challenger discovers a forced mate against its opponent, it lights several ranks of board squares to show that mate is coming. The number of ranks left unlit indicates how far off the mate is. Thus if Challenger sees a Mate-in-Three, all of the board squares would be lit except for the sixth, seventh, and eighth ranks (see Figure 4-1). When mate has been announced, the player can either resign, press RE, or go on playing by pressing CL. After CL is pressed, Challenger indicates its move in the usual way. If the move Challenger indicated is the actual mating move, once the move is entered on the board, the whole board is lit.

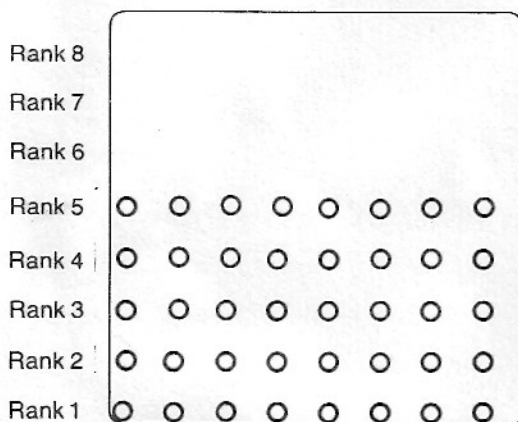


Figure 4-1. Mate Announcement Against Opponent

MATE ANNOUNCEMENT—AGAINST CHALLENGER

When Challenger sees a forced mate against itself, it may or may not announce it ahead of time. If Resign Enable was chosen as an Option, Challenger will announce the mate and offer its resignation. Challenger does this by flashing the board squares in a manner similar to mate announcements. The number of ranks left dark indicates how far off the mate is.

To accept Challenger's resignation, press RE. To play on, press CL. Challenger will then indicate its move in the usual way. If your last move delivered mate, Challenger will flash the whole board.

DRAW ANNOUNCEMENT

Challenger can recognize and claim draws in four different categories. It can also offer a draw and respond to the offer of a draw. The basic feature of draw announcement is the illumination of a triangle of lights on the playing surface. Besides the triangle, each type of draw or draw offer has its own defining characteristics as follows:

Lights here indicate type of draw (50-move rule shown)

Triangle indicates draw

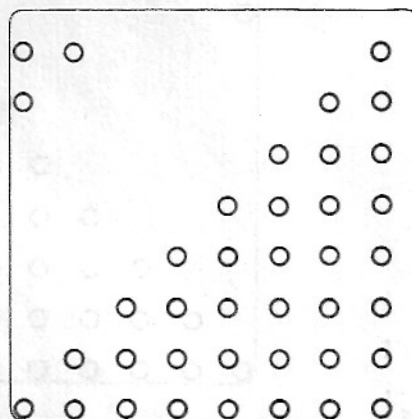


Figure 4-2. Draw Announcement

DRAW BY THE 50-MOVE RULE

If 50 moves are played in the game without either side having pushed a Pawn or captured a piece, the game is drawn by the 50-move rule. If Challenger detects that this has happened, it will claim a draw by lighting the big triangle solidly and also lighting a little triangle using squares A7, A8, and B8 (see Figure 4-2).

STALEMATE

A game of chess is drawn by stalemate if the player whose turn it is to move has no legal moves, but his King is not in check. Challenger claims a draw by stalemate by lighting the triangle solidly. No other lights are lit (see Figure 4-3).

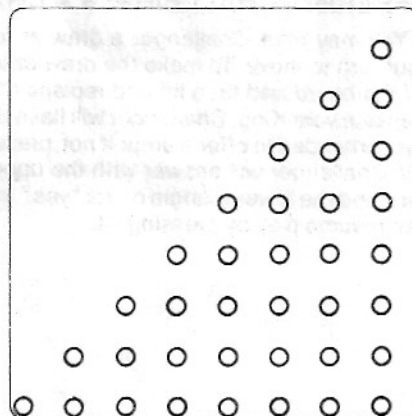


Figure 4-3. Stalemate Indication

OPPONENT'S MOVE HAS REPEATED THREE TIMES

When the same position occurs three times in a game of chess where the same side has the move each time, then the game is drawn by repetition of position. When Challenger recognizes that its opponent has made a move that results in a third repetition, it claims the draw by lighting the triangle solidly and also lighting square A8 (see Figure 4-4).

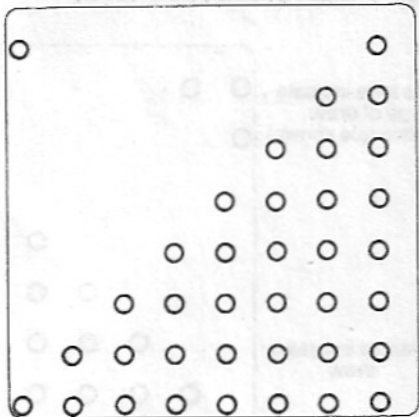


Figure 4-4. Opponent's Move has Repeated Three Times

CHALLENGER'S MOVE WILL REPEAT THREE TIMES

When Challenger is about to make a move that will result in the same position being repeated for the third time, it first flashes the triangle and also flashes square A8. When the CL Key is pressed, Challenger will display the drawing move.

CHALLENGER OFFERS A DRAW

Challenger will offer a draw whenever, in its estimation, neither side possesses sufficient material to bring about a mate. Challenger makes its draw offer by flashing the triangle. No other lights are lit. To accept Challenger's draw offer, press RE; to decline, press CL.

OFFERING CHALLENGER A DRAW

You may offer Challenger a draw at any time that it is your turn to move. To make the draw offer, take your King off the board and then lift and replace Challenger's King. Replace your King. Challenger will flash the triangle to ask if you intended to offer a draw. If not, press CL. If yes, press RV. Challenger will answer with the upper triangle on for "no" and the lower triangle on for "yes." In either case, you can resume play by pressing CL.

SECTION IV - MATES AND DRAW ANNOUNCEMENT

When the King is captured, the game ends in a draw. This is because the King is the only piece that can capture the other King. If the King is captured, the game ends in a draw. This is because the King is the only piece that can capture the other King.

MATE ANNOUNCEMENT

When the King is captured, the game ends in a draw. This is because the King is the only piece that can capture the other King. If the King is captured, the game ends in a draw. This is because the King is the only piece that can capture the other King.



Figure 4-4. Mates and Draw Announcement Against Opponent

MATE ANNOUNCEMENT

When the King is captured, the game ends in a draw. This is because the King is the only piece that can capture the other King. If the King is captured, the game ends in a draw. This is because the King is the only piece that can capture the other King.

MATE ANNOUNCEMENT

When the King is captured, the game ends in a draw. This is because the King is the only piece that can capture the other King. If the King is captured, the game ends in a draw. This is because the King is the only piece that can capture the other King.

SECTION V—GENERAL INFORMATION

TRANSFORMER

The transformer provided with your Prestige Challenger has been specifically designed for use with this product. We strongly recommend against the use of any transformer or power source other than the transformer provided by the manufacturer.

SPECIFICATIONS

Power Source: Operates on 110, 220 or 240 volt AC power (depending upon transformer used), 50-60 Hz, 10 watts (maximum).

Electronics: All solid state.

Read Out: Voice reproduction via 2-inch, 8-ohm speaker; 7-segment alpha-numeric display; 72 L.E.D. indicators.

Keyboard: 11 tactile switches. One rocker switch on side of housing.

USING THE FIDELITY PRINTER

Plug the Fidelity Printer signal cable into its receptacle on the side of Challenger's housing. For Printer operation, refer to the Challenger Printer Operating Instructions provided with the Printer.

USING MODULES

Your Prestige Challenger is shipped with a Book Opening Module already in place.

To remove the module while Challenger is operating, first press RE to enter Game Control Mode and then place the LOAD/PLAY switch in the LOAD position. Remove the module by pulling straight out with even pressure.

To install the module, ensure that the LOAD/PLAY switch is in the LOAD position. Insert the module, narrow end first, into the module receptacle. Push the module all the way into the receptacle using even finger pressure until the fit is snug.

Replace the LOAD/PLAY switch to the PLAY position, and press clear to exit Game Control Mode.

NOTE: You cannot disconnect a module if you are getting an illegal move indication. You must correct the illegal move indication before removing the modules.

