PHANTOM
COMPUTER CHESS

THE USER'S GUIDE

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1 Power supply (transformer A)
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Let's Play Chess:

a complete introduction to the game with advice on
how to improve your play.
If you are an experienced player, you will not need
to refer to this.

Phantom – Computer Chess
The User's Guide:

a simple guide to Phantom's many features
explained in straightforward, non-technical
language, together with a detailed explanation of
the functions of the various signals and keys.

Phantom is your almost-human opponent.

You have never met anyone like him: if you have not had a demonstration of what he can do, you are due for some pleasant surprises. What sets Phantom apart from other good chess computers is that he moves his own pieces unassisted.

Start by playing him a game: he'll match your strength whether you are a beginner or a seasoned player. You work out your move and make it on the board. That's all: there is no encoding or complicated button-pushing to do. He will adjust your man if you don't place it tidily in the centre of its square!

Phantom will reply to your move just like a human – he even removes your man from the board when he makes a capture. When it is his turn there is nothing for you to do except concentrate on the game.

If you are a beginner, you have the ideal teacher. Phantom will demonstrate all the possible moves of any piece in a position. Just ask him. If you are not sure what to play next, he'll give you a hint; if you make an illegal move, he'll tell you and he'll even let

you take moves back!

After the game, Phantom will replay it for you. You can stop the action at any time if you want to study the position – to find out where you went wrong for instance. For a change, you could play with a friend and get Phantom to monitor the game. Phantom can also perform all the functions you would expect of a good chess computer – and more. He can play as White or Black – or both. Watch him play himself and you may pick up some tips! Chess problems he takes in his stride and he will analyse a position for you for as long as you wish or assist you to study the chess openings. If the pieces get disturbed, Phantom will restore the position at a touch.

What more could you ask for? Phantom is the perfect chess companion. Now give him a game . . .

Before using Phantom, examine the power leads of the transformer and connections to the computer. If you suspect damage, telephone the operator and ask for "Freephone Milton Bradley" or use the enclosed Customer Service Card and we will contact you – do not attempt to use the computer.

Place the power supply (transformer type A) with its insulated base on the floor and plug it in to the computer unit. Make sure the power switch is OFF before plugging in to the 240V AC household wall socket. (See Diagram 1.) *Never leave the power supply connected when Phantom is not in use.*

Caution:
Remember, this is an electrically-operated product and care should be taken during handling and use to prevent electric shock.
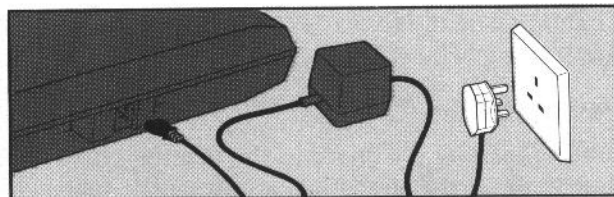**240V AC   50Hz   30 watts
(For indoor use only)**

NOTE:

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked L or coloured red.

AC/Wall Socket 240V

Power Supply
(transformer A)
plugged in here

Border Area –
captured White
pieces this side

Border Area –
captured Black
pieces this side

White pieces
starting side.

On/Off
switch

Signals

Keys

Algebraic
Notation for
recording moves

Control Panel
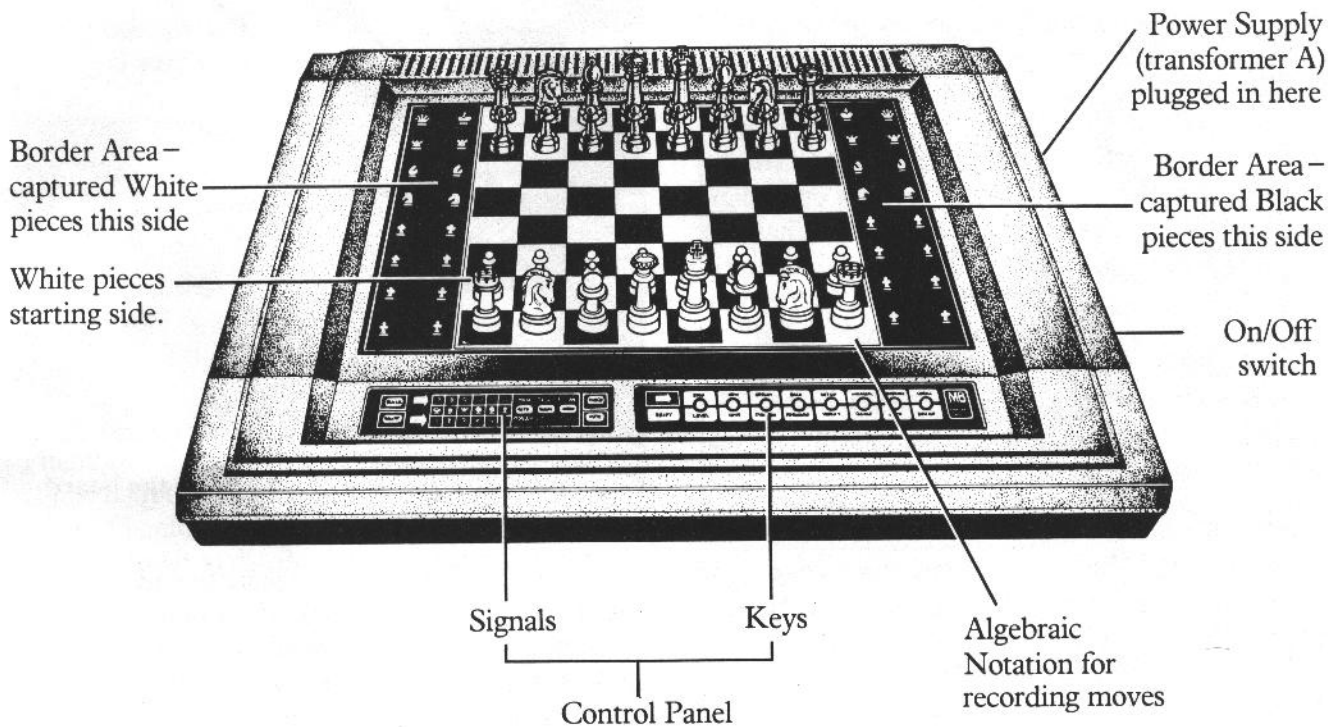
Diagram 1

5

Phantom is ready to play you with the minimum of fuss.

Preparation

Put the men on the board in the starting position, the White men nearest the control panel. Take care to put the pieces in their correct order because Phantom identifies them by the squares they occupied in the starting position. Switch on the power. Phantom will bleep and flash his lights to indicate that he is ready for a game. You sit facing the panel and take the White side. (You can play Black if you'd rather: just press the CHANGE key and Phantom will move first.) The light on the far left will confirm that it is White to move. Phantom will now adjust the men on their squares – an untidy array upsets his concentration. There is no need to wait for him though; you may move when you wish. Phantom is set at Level 2 which means that he will take an average of five seconds a move – ideal for a quick game. You have the advantage: you can play at what speed you like!

Moving

Ready? Take hold of the man you plan to move and register its present position by tilting it slightly and pressing down on the centre of its square. (See Diagram 2.) This action is called "registering". Phantom will acknowledge with a bleep. If you don't hear him, press again. The corresponding piece symbol will light up on the control panel and the WHITE indicator light will flash to denote that White is moving. Phantom wants to make sure that

you know what is happening, but don't let him distract you – concentrate on the game and forget the control panel for the present.

Diagram 2
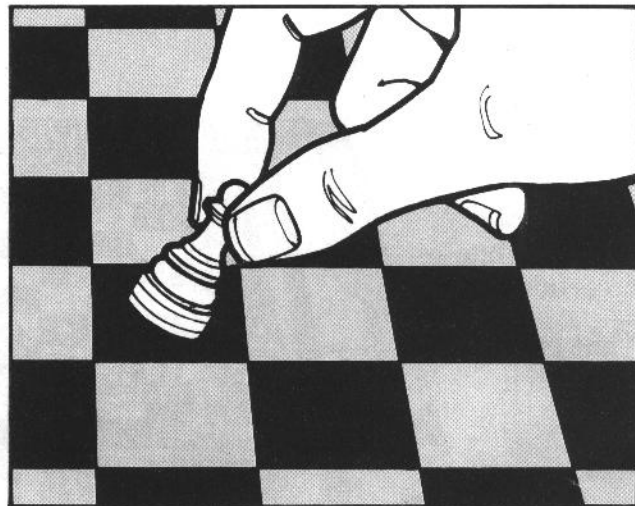
Registering the position of a piece on the board Tilt and press in centre of square.

Now move your man to the square to which you wish to play it. Again, "register" its new position by pressing down on the centre of the square; then let go. Phantom will bleep acknowledgement and the BLACK Indicator light will flash slowly to show you that it is Black's turn to move and that he's thinking.

When he is ready, Phantom will move his man automatically. Your light (WHITE) will then come on to show that it is your turn again. If Phantom moved when you weren't looking, you may press SHIFT, BACK and FORWARD in that sequence and he will replay the move.

Capturing

If you want to make a capture, start your move in the usual way, pick up the man you are taking and then complete your move; (be sure to register this also). The symbol of the captured man will light up on the panel.

Now place the man you have captured on a corresponding symbol in the Border Area (see Diagram 3). Captured Black pieces always go to the right Border Area and captured White pieces always go to the left Border Area. Register the action by pressing down on the symbol in the same way that you press down on a square when you move. Phantom will bleep to confirm your action and will adjust both the man moved and the captured man. When Phantom makes a capture he'll remove the captured man to the Border Area automatically.

The chess pieces are represented by the following symbols in the Border Areas.

		WHITE	BLACK
KING		♚	♔
QUEEN		♛	♕
ROOK		♜	♖
BISHOP		♝	♗
KNIGHT		♞	♘
PAWN		♟	♙

Diagram 3

SPECIAL MOVES

There are a few special moves in chess. Phantom has no trouble with them but if you are uncertain of any rule, refer to the accompanying booklet **Let's Play Chess.**

Castling

When you castle you must move the king first, then the rook. If you move the rook first, Phantom will (rightly!) accept that as your play and will not let you follow with the king's move.

Promotion

To promote a pawn, follow this sequence:

1. Register the pawn on the starting square.
2. Register the pawn on the promotion square. If you promote with a capture, remove the captured man to the Border Area as described previously.
3. Press down on the symbol of the piece (usually the queen) in the Border Area to which you wish the pawn to promote.
4. Take the chosen piece from the Border Area and place it on the promotion square, registering it as usual.
5. Remove the pawn to its place in the Border Area and again press down.

If you wish to promote your pawn, for example, to a queen and your queen is still on the board, omit steps (4) and (5). Your pawn remains on the board but now ranks as a queen. Cap it with one of the plastic crowns provided to remind you of its new

status (see Diagram 4). When a suitable piece is captured, (in our example, the queen), Phantom will automatically substitute it for your pawn.

If Phantom is in a similar situation, he will flash a symbol to indicate that his pawn is assuming the powers of that piece. It would be as well to crown his pawn: your memory may not be as good as Phantom's!

Crown the pawn to show its new status.
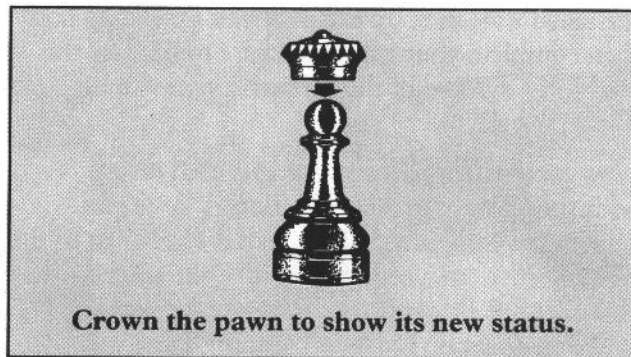
Diagram 4

En Passant

When you want to capture a pawn **en passant,** follow the same procedure as for a normal capture, but do not press on the square from which you lift the captured pawn.

CHECK AND CHECKMATE

If a move results in check, the CHECK light comes on and stays lit until the next move. The MATE light flashes if one side gives checkmate. Phantom doesn't give up! If you wish to abandon a game, press SHIFT then NEW and Phantom will rearrange the men in the starting position ready for the next game.

Draw

Phantom signals a draw should one occur and indicates the appropriate rule. You can of course 'agree' a draw with Phantom whenever you wish. **Note:** If Phantom thinks he is losing, he will try to bring about a three-fold repetition to draw.

ANY QUESTIONS?

Phantom may sometimes act in an unexpected way. If he declines to move, it is probably because you've failed to register an action. Phantom will bleep once every time you press on a square or a Border Area symbol. Be sure he acknowledges. To cancel an action you have begun, (you may want to change your mind), press again on the starting square. (As you will discover later, you must press SHIFT and BACK to cancel a complete move.)

Phantom will also bleep to show that he understands your instruction when you press a key.

Phantom signals an illegal move by a loud buzz accompanied by a flashing of all the lights. If this happens, check your last action and correct it if necessary. Perhaps it wasn't your move? The Black/White light will tell you.

Chess with Phantom is as easy as that! Ready for another game?

Now that you have played a game or two, you'll want to find out all the other things that Phantom can do. Here they are in brief.

1. Phantom will play at any of 12 different levels.
2. Phantom will play himself.
3. You can play against yourself or a friend and let Phantom act as arbiter.
4. Phantom will demonstrate all the legal moves of any piece in any position.
5. Phantom will stop you making an illegal move.
6. If you are stuck for a move, Phantom will give you a hint. He'll tell you what he's thinking too!
7. You can take moves back – as many and as often as you want.
8. Phantom will replay, move by move, the game you have just completed.
9. You can set up any position and start play from there.
10. Phantom will solve chess problems for you.
11. Phantom will verify the position on the board if you request him to.

One of the nice features of Phantom is his versatility. You can switch from one function to another at any time. It may take a little while for you to appreciate all the things you can do together, but here is one idea:

An entertaining way to improve your play is to try and work out Phantom's moves during a game. Before each of your turns, decide on Phantom's reply – then make your move and watch him respond. If you are correct, score a point. Note your percentage of successes at the end of the game. You will find that your chess soon improves.

Now let us examine in a little more detail how you do all these things...

Note: Each key has two functions. To use the function shown at the bottom of a key just press the key centrally. To use the function shown at the top of each key press SHIFT and then the key in question.

AUTOPLAY FUNCTION

Phantom will play against himself. Set the pieces up in the starting position and select the level of play desired, (but not Level 1 unless you have a lot of time to spare – at this level Phantom will avoid giving checkmate). See Play Levels for how to do this.

Now press AUTO and you are a spectator. If you want to join in at any time, press GAME.

If you press AUTO twice in a row, Phantom will not rest at the end of a game... he will set up the pieces again in their starting positions and continue playing game after game until you direct him to stop, (e.g. by pressing GAME.)

MANUAL FUNCTION

You can play against a friend (or yourself if you want a genial opponent). Set the men up then press SHIFT and MANUAL. Register the moves as usual; Phantom will acknowledge, but he will protest if you try to make an illegal move.

You can make use of all the other functions that were open to you when you played Phantom, such as asking for hints or getting Phantom to replay the game. You can of course switch to GAME or AUTO at any time.

Another interesting way to use MANUAL is to study "openings". Set up the men for starting and play out the moves manually until the desired position is reached, then switch to GAME to see what Phantom suggests as the best continuation. You can then play on if you wish, returning to the position as often as you like.

DEMONSTRATION OF LEGAL MOVES

Phantom will demonstrate the legal moves available to any man on the board. Press SHIFT, then LEGAL. Now register the man required. Phantom will demonstrate all the legal moves of that man automatically. Each move will be announced with a bleep and concluded with a double bleep, when the man will be returned to its square before the next move is demonstrated. If the man has no legal move, Phantom will emit an ERROR signal.

You can halt a demonstration by pressing SHIFT and STOP.

ILLEGAL MOVES

Phantom never makes illegal moves nor will he allow you to do so. Phantom signals an illegal move or attempted move with a buzz, simultaneously flashing all his lights.

The more common causes of illegal moves are:

1. It is not your turn to play (check the Black/White indicator light).
2. You failed to register the start of a move (repeat the move).
3. The start of the move was correctly registered but subsequently you made a mistake – such as moving your piece to an illegal square or moving your king into check. Repeat only the second part of your move.

TAKING BACK MOVES

It is customary to play the 'touch and move' rule which is enforced in matches and tournaments. However, Phantom will permit you to take moves back if you wish (he never does it himself unless asked). Apart from having second thoughts, you may want to analyse a position or to see how Phantom would reply to an alternative move you had in mind. You can also make Phantom take back

his moves, but unless you play differently there is no guarantee he will not repeat them.

Incomplete Move

If you have begun a move by pressing down on a square, you can cancel it by pressing down a second time on the same square. You are then free to move another man. If you are making a capture or a special move, such as promoting a pawn, and have gone beyond this stage, you must complete the move before getting Phantom to take it back.

Completed Move

Press SHIFT and BACK and Phantom will take back the last move played.

To see the same move played again, press FORWARD.

To take back last move: SHIFT, BACK.

Series of Moves

Phantom will take back a series of moves if you wish. Press SHIFT and BACK twice in succession.

To take back several moves. SHIFT, BACK, SHIFT, BACK.
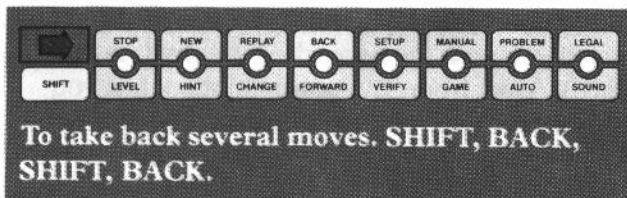
Phantom will now take back moves one at a time at one-second intervals until you press SHIFT and STOP. Phantom will even let you take back moves after he has checkmated you!

Replaying Moves

If Phantom is taking back moves and overshoots the position you wanted to go back to, you can reverse the last move taken back by pressing FORWARD once.

To replay last move taken back: FORWARD.

To replay several moves: FORWARD, FORWARD, SHIFT, STOP.

If you want Phantom to move forward more than one move, press FORWARD twice in succession. Phantom will now replay the moves taken back at one-second intervals. To stop the process, press SHIFT then STOP as before.

The advantages of this BACK and FORWARD facility are apparent. You are free at any time in a game to go back to an earlier position to analyse it, later returning to the present position. If you decide, after getting Phantom to retract a series of moves, to change your move, then the game is resumed from

this point, but Phantom's forward memory is consequently cancelled.

If you wish to replay all the moves in a game, whether the game is completed or not, use the REPLAY function.

REPLAY

If you want to replay a game, you have only to press SHIFT and REPLAY.
Phantom will rearrange the men in the starting position and then replay the game automatically.

To rearrange pieces at starting position and replay game: SHIFT, REPLAY.

To rearrange pieces at starting position manually and then replay game: SHIFT, REPLAY, VERIFY, SHIFT, REPLAY.
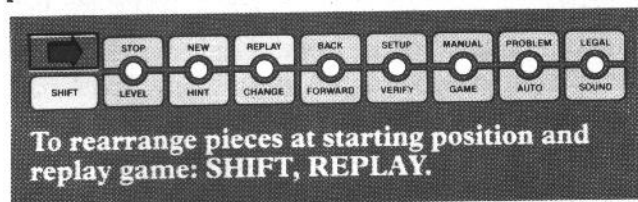
If you wish to rearrange the men yourself, press VERIFY immediately after REPLAY. When you have assembled the men, press SHIFT and REPLAY again.

Phantom will now play through the moves of both sides at intervals of a few seconds. You can take this

opportunity to score the game or to check that the score you kept during the game is correct. Phantom will play through the game as many times as you wish – simply repeat the procedure. You can use the REPLAY function at any time during a game – you need not wait until the game is over.

To stop and start a replay: SHIFT, STOP, FORWARD.

You can halt a replay by pressing SHIFT and STOP. If Phantom is moving when you do this he will complete the move. If you then want the replay to continue, use the FORWARD key; or you can use SHIFT and REPLAY to start the replay again.

You might wish to resume the game from the point where you halted the replay or perhaps try out a move to discover Phantom's response, or get Phantom to take over your game by pressing the CHANGE key, or ask Phantom to continue the game from this point against himself by pressing AUTO. In all these cases, however, you will erase the forward memory and Phantom will be able to replay only those moves that preceded your instruction to stop.

HINT FUNCTION

A unique feature of Phantom is the HINT facility. If you are unsure what to do next, just ask Phantom

by pressing HINT. One of your men will vibrate – that's the one he suggests you should move.

You can also use the HINT facility when it is Phantom's turn to move, to find out what is going through his mind. He will vibrate the man he is planning to move – but, like you, he could change his mind if he finds something better.

PLAY LEVELS

Phantom has twelve levels of playing strength. Just like you, he makes better moves when he has longer to think about them.
The average time taken by Phantom for a move at each level is given below.

Level	Time per move
1	1 second
2	5 seconds
3	10 seconds
4	20 seconds
5	40 seconds
6	1 minute
7	1½ minutes
8	2 minutes
9	2½ minutes
10	3 minutes
11	3¾ minutes
12	Infinity

The above timings do not apply when the PROBLEM function is used (see Chess Problems).

The actual time taken may be double the average in difficult positions but, to compensate, Phantom may move faster at other times. For example, he will often move quickly at the start of a game as he is well briefed on the openings. Since he is also thinking when it is your turn to play, he may anticipate your move and respond briskly.

Level 1 is ideal for the complete beginner – Phantom has been programmed to let you win at this level unless his only possible move is to give checkmate. At the top level (**Level 12**), Phantom will move only when you press the SHIFT and STOP keys. An advantage in playing at this level is that you can control the length of a game. At any other level, too, you can make Phantom play instantly by pressing SHIFT and STOP. This facility allows you to speed up a game. At all levels, you can take as long as you want over **your** moves.

Changing the Level

When you switch on the power, Phantom is set on **Level 2**. Press the LEVEL key. The queen symbol will light up together with the lower of the two arrows. There is a number above and below the queen. The arrow indicates that the level is the lower number – 2. If you wish to change the level, continue to press LEVEL. Each time you press, the level will increase by one. Thus, if you pressed the key five times more, the king symbol would light together with the upper arrow indicating that Phantom is set on Level 7. Press at Level 12 to return to Level 1. When you start play or press another key, the level lights will go out. Phantom

will remain on the level you set.

You can change the level at any time. For example, if you were playing a fast game and reached a critical position in which you wanted Phantom to find a good move, you could switch to a higher level and change back again on the following turn.

Checking the Level

You can always check the level during play by pressing the LEVEL key once.

CHECKING THE POSITION

If you disturb the chessmen at any time, accidentally or otherwise, and you want to restore the position, Phantom will be happy to oblige.

If you need to know what man is on a particular square or Border Area symbol, press VERIFY then press on the designated square or symbol. Phantom will emit a double bleep and the appropriate piece symbol and Black or White light will go on. **If there is no man there, Phantom will bleep once and no symbol will light.**

If you displace a number of men or have forgotten where a man should be, it will probably be quicker to verify the whole position. Here is what you do. Put all the men on their correct symbols in the Border Area (do not register them). Men already in the Border Area are not moved. Now press VERIFY **twice.** Phantom will restore the position on the board and bleep when he has finished.

You can even get Phantom to check the position when you are in the middle of a move, which you'll agree is accommodating. If you press VERIFY before finishing a move, Phantom will assume you are cancelling that move unless you commit yourself by capturing a man, moving the king to castle, or promoting a pawn, when Phantom will assess the move as played when reassembling the position. If you promote a pawn and press VERIFY before selecting the piece to which you had intended the pawn to be promoted, Phantom will assume the pawn has been promoted to queen.

When you've finished checking the position, press GAME to continue play against Phantom; (alternatively, press AUTO or SHIFT and MANUAL to resume these functions).

STARTING A NEW GAME

If you wish to abandon a game or start a new game after a checkmate, press SHIFT and NEW and Phantom will rearrange all the pieces in their starting positions ready for a new game.

You may want to set up a position on the chessboard for any of a number of reasons. To resume a half-finished game, for example, or to study an endgame or to solve a chess problem.

You may want to set up a position after switching on, or in the middle of a game; or you may wish simply to modify the position on the board. Whatever your need, Phantom will oblige.

The first essential step is to press SHIFT and SETUP. If you are in the middle of a game, this action will erase Phantom's memory.

SETTING UP A POSITION AFTER SWITCHING ON

If you want to set up a position immediately after switching on, there is no need to assemble the men on the board.

To set up a position after switching on: SHIFT, SETUP, SHIFT, NEW, VERIFY, SHIFT, SETUP.
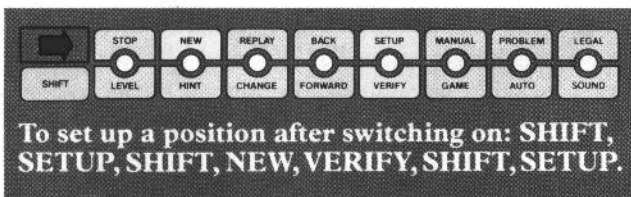
After pressing SHIFT and SETUP, activate the following keys in turn:
SHIFT NEW – VERIFY – SHIFT SETUP. You can now set up your position which must include both kings. Each man you bring on to the board **you must register on the correct symbol in the Border Area before registering it on the**

desired square. The last man you place will determine the side to move. If you wish the other side to play first, press CHANGE. Before beginning to play, ensure that all the pieces which are not on the board are available in the Border Area. Do not register these: Phantom will expect to find them there.

CLEARING THE CHESSBOARD

If you are in play and want to set up a new position, you may first find it convenient to clear the chessboard. You can let Phantom do this or you can do it yourself.

Automatically

Press SHIFT and SETUP and then SHIFT and NEW. Phantom will move all men remaining on the board to the Border Area.

To clear board automatically to set up new position: SHIFT, SETUP, SHIFT, NEW.

To clear board manually to set up new position: SHIFT, SETUP, SHIFT, NEW, VERIFY, SHIFT, SETUP.
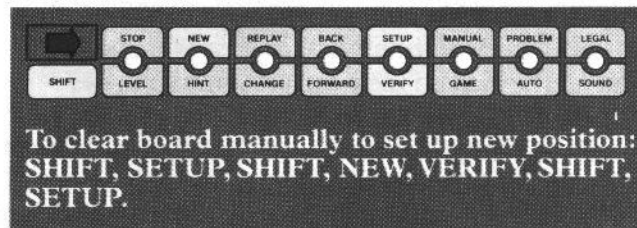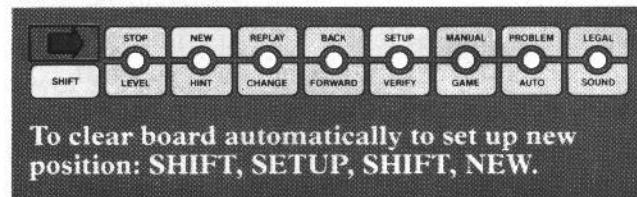
Manually

Press SHIFT/SETUP, SHIFT/NEW and VERIFY in that order. Now put the men in their proper places in the Border Area. Do not register the moves – just lift the men and set them down.

When you've done this press SHIFT and SETUP again.

CHANGING THE POSITION (IN SETUP)

If you wish to change the position on the board by moving men around, simply make these adjustments as though they were moves, registering the moves in the normal way. The corresponding piece symbol will light as you move.

Extra Pieces

You may have need of an extra piece or pieces in the position – for example, two white queens. As in pawn promotion, you use a pawn to represent the second queen. Press down as usual on the square or symbol occupied by the pawn. Then press CHANGE and the queen symbol light will flash. Press the pawn again on whichever square you want the queen, (it could be the square the pawn is on). Now Phantom recognizes the pawn as a queen so it would be as well to crown it. If you wanted an additional piece other than the queen, you would press CHANGE and continue to do so until the piece you want (say a knight) is illuminated, when you press the pawn a second time, as before.

Thereafter Phantom will treat the pawn as a knight. You can have as many extra pieces as you like.

RESUMING PLAY

If the last man you placed was black, the Black/White light will show Black to move. To change to White, press CHANGE.

Resuming play having set up a position:
CHANGE, LEVEL, GAME, CHANGE.
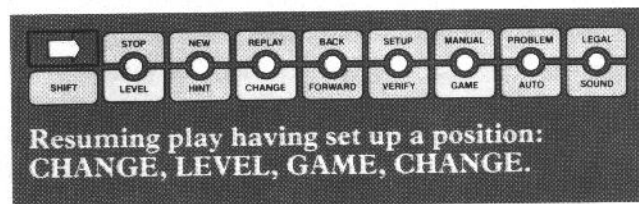
Now switch to the function required. Suppose you want to resume a game against Phantom and it is his move. First select playing level, then press GAME and then CHANGE (telling Phantom to move first) and you're back in play!

Castling

If you set up a position where the king and one or both rooks of a side are on their original squares, Phantom will permit castling if otherwise legal.

En Passant

Phantom will not allow an immediate **en passant** capture after switching out of SETUP. If this is an option you want, set up the position as it would have been one move earlier and then make the move which permits the capture when you resume play.

Illegal Position

If you have set up an illegal position, then when you change from SETUP, Phantom will emit two buzzes and the lights will go out. If this happens, press SHIFT and SETUP again and correct the position. When this is done, return to the desired function. If you can see nothing the matter with the position, verify it. Obviously, after you have set up a position and resumed play, Phantom can allow you to take moves back only as far as that position.

CHESS PROBLEMS (IN SETUP)

Phantom will solve chess problems for you. (If you are unfamiliar with these, see **Let's Play Chess.**)

Setting Phantom a problem: CHANGE, LEVEL, SHIFT, PROBLEM.
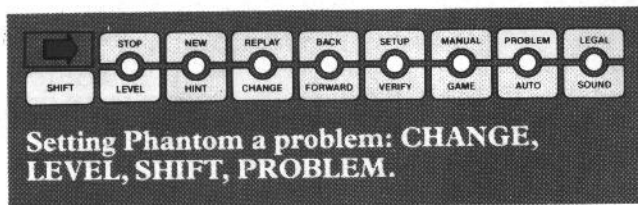
Phantom can find a forced mate in any number of moves, *up to five*. Set up the postion as described previously. Make sure Phantom knows it's White's turn to move. Now press LEVEL until the number on the signal panel corresponds to the number of moves in which you require Phantom to find the forced mate. If you wish Phantom to solve a two-move problem, then he will be on the correct level when you switch on. Now press SHIFT and PROBLEM. This converts the game level into the number of moves in which you require Phantom to find a checkmate. The White indicator light should flash slowly to signify that Phantom is thinking.

Chess problems are not easy, for humans or computers. Phantom may take some minutes to find the key move if the position is complex. If Phantom cannot find a mate in the stipulated number of moves, he bleeps once and the Black/White light stops flashing.

When Phantom has found the key move he will play it on the board. If you doubt his solution, or wish to follow the play, you must now take over the defence. Find what you consider to be Black's best response and make the move on the board in the normal way. Phantom will automatically reduce by one the number of moves in which he must now checkmate. Shortly, he will play White's reply to your move. You can continue like this until Phantom delivers checkmate.

Perhaps you may wish to consider an alternative defence. In that case, follow the procedure for taking back moves until you reach the desired position. However, when you take back moves in the PROBLEM function, Phantom does not extend the number of moves required to mate. You must do this for him, by pressing the LEVEL key as often as necessary, **before** making your move. For example, you reach the mating position in a five-move problem but now want to see what would have happened if Black had played differently on his second move. You use the BACK key to return to the position after White's second move. Now before

you try your new move you must reset Phantom to Level 3 so that he'll know he has to find a mate in three moves after you have played. (When you are using the PROBLEM function, the Level does not go up 12 but reverts from 5 to 1.)

A Typical Problem

Let us follow through a simple example – a three-move problem with a single line of play.

Set up the position in Diagram 5. Make sure it is White's turn to move. Now press LEVEL until the rook and lower arrow are lit on the Control Panel to

indicate that Phantom is set on Level 3. Press SHIFT and PROBLEM.

The WHITE light will flash slowly. After only a few seconds, Phantom will play the white king one square straight up the board. Would you have found this improbable move? There is no other way in which White can force checkmate in three moves from this position.

Phantom will have now automatically adjusted the requirement to 'mate in two'. You move for Black. Your king, you will discover, has but one move – one square diagonally up to the right. Now the position in Diagram 6 has been reached.

White to play and mate in three moves.

BLACK

Diagram 5   WHITE

BLACK

Diagram 6   WHITE

19

BLACK

Diagram 7   WHITE

BLACK

Diagram 8   WHITE

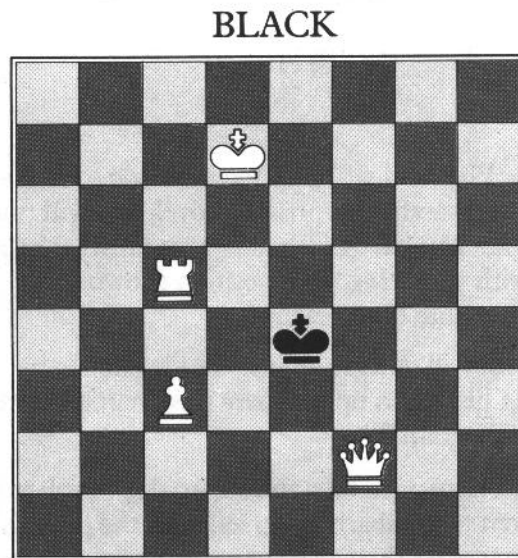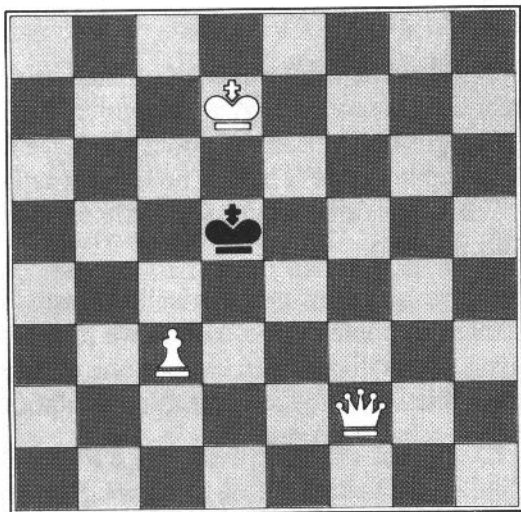Shortly Phantom will play the rook one square to the right – another surprising move! You will find that again you have no choice – you must take the rook with your king. The position shown in Diagram 7 has been reached.

Phantom will quickly deliver the checkmate by moving his queen up to where it is guarded by the pawn (Diagram 8).

It is recommended that you set up this problem on Phantom to familiarise yourself with the procedure. It will take less than a minute to play right through to checkmate.
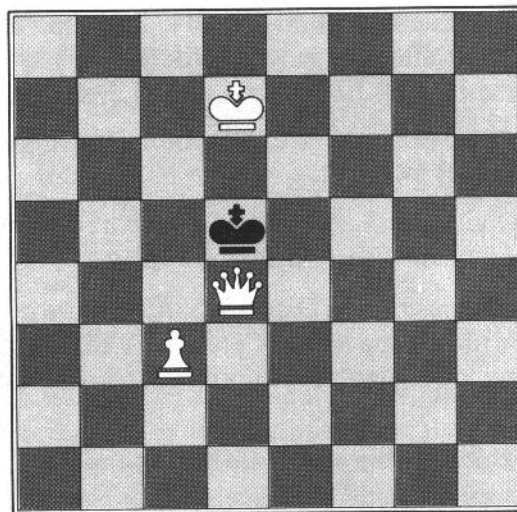
Other "Problems"

You may come across game positions and endgames in which you are required to find a win, or sometimes a draw, for one side. These are not strictly chess problems since they do not stipulate the number of moves in the solution.

Phantom will help you with these puzzles. Set up the required position with the correct colour to play. Since the solution is likely to be quite difficult, it is best to set Phantom on Level 12. Now press GAME and CHANGE to get Phantom to move first. When you have made Phantom move (by pressing SHIFT

and STOP as you are on LEVEL 12) you can either play the defence yourself or you can switch to AUTO and let Phantom do the work.

The solution may not call for checkmate – you may be asked something like 'White can win a piece in this position – how?' You will need to terminate play when Phantom has satisfied the requirement.

Now you have a good idea of Phantom's many talents. Because of his versatility Phantom has latent potential which can be exploited by the intelligent owner. The message is – experiment. If you have any problems contact our Customer Service Department.

An intimate guide

Here is all you need to know about Phantom's many functions. Use this guide as a reminder of the various uses of each signal and key, and as a fault-finder when Phantom does not respond as you expect.

PHANTOM

The computer should always lie flat. If placed on an uneven surface, Phantom may malfunction.

POWER

When turned on, Phantom will bleep and all lights will flash briefly. The WHITE indicator light will stay lit: Phantom will then adjust the men on their squares.

Phantom assumes the men are in the starting position. If you reverse the position of the king and queen, for example, Phantom will not know this: he will treat the king as a queen and vice versa. Phantom is set initially on Level 2.

When turned off, all memory stored in Phantom is erased.

AUDIO SIGNALS

Single Bleep

1. Acknowledgement by Phantom of a legal action by you, on the board or in the Border Area.

2. Acceptance of instruction by Phantom when a key is pressed.
3. Announcement of a move by Phantom.
4. In VERIFY, indicates that square or Border Area symbol registered is vacant.
5. In PROBLEM, in conjunction with Black/White light stopping flashing – no mate in number of moves set.

Double Bleep

1. In LEGAL – completion of move.
2. In VERIFY, with symbol and Black/White lit, indicates that man identified should be on square or Border Area symbol registered.

Five Long Bleeps

End of game:

1. with MATE light – checkmate.
2. with DRAW light – stalemate.
3. with DRAW light and top arrow – draw under 50 Move rule.
4. with DRAW light and bottom arrow – draw by repetition of position.

Buzz

With all lights flashing – ERROR.

1. Illegal move attempted.
2. In LEGAL, no legal move for man registered.

Two Buzzes

With all lights off when switching from SETUP – illegal position. For example, both kings

not on the board.

Continuous Buzz

With all lights on – possible fault. Turn POWER
off, then on again. If buzz repeated, switch off and
contact Milton Bradley. DO NOT ATTEMPT
TO USE.

LIGHT SIGNALS

All lights on

With continuous buzz – possible fault.

All lights flashing

With buzz – ERROR
1.   Illegal move attempted.
2.   In LEGAL – no legal move for man registered.
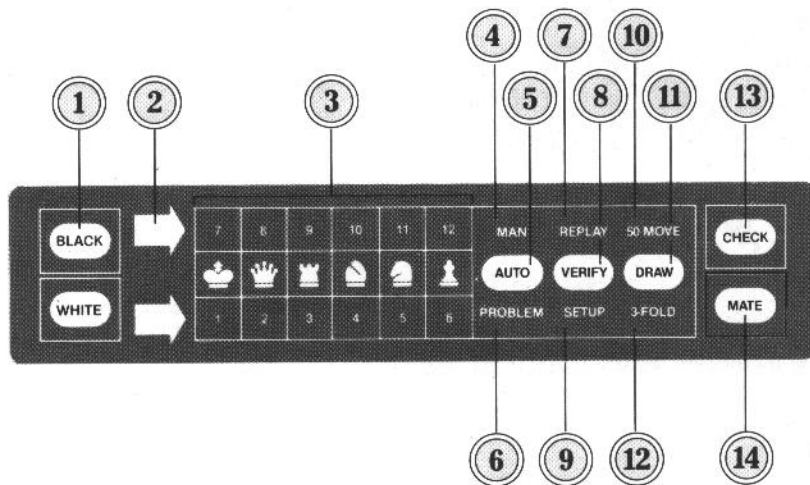
All lights extinguished

With two buzzes – illegal position.
See under AUDIO SIGNALS above for
appropriate actions.

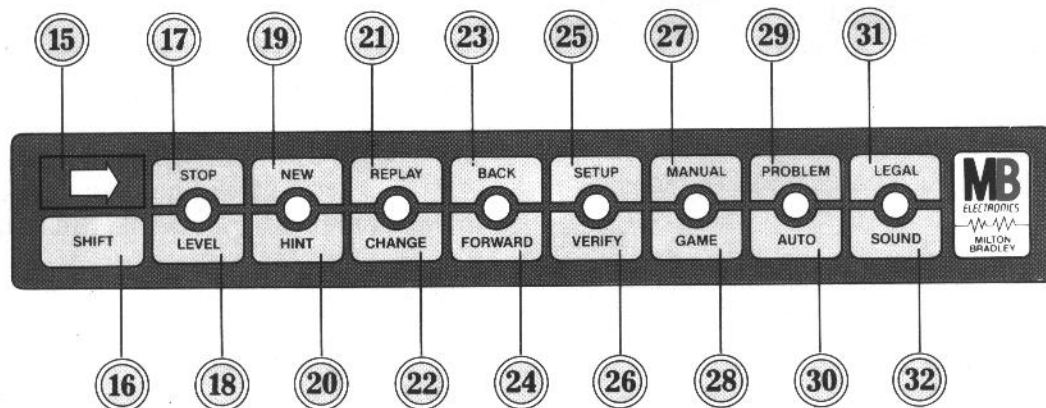**Control Panel showing signals and keys.**

Signals

Keys

Diagram 9

CONTROL PANEL (See Diagram 9)

The Control panel is in two parts:
On the left is the Signal Panel. Phantom uses this to tell you what is happening and to pass messages.
On the right is the Key Panel. You use this to give Phantom instructions. The various functions of the signal lights and keys are explained below.

SIGNAL PANEL

(1) BLACK/WHITE

In GAME, AUTO, MANUAL – indicates side to move.
If steady – your turn to move.
If flashing slowly – Phantom is computing.
If flashing rapidly – move in progress.
In SETUP – indicates colour of man being placed. The colour of the last man placed will determine which side moves first.
In VERIFY – in conjunction with symbol light and double bleep – man identified should be on square or Border Area symbol pressed.
In PROBLEM – if light stops flashing in conjunction with a bleep, no mate found in number of moves set.
If flashing slowly – Phantom is computing.

(2) ARROWS

A lit arrow indicates the number or function directly above or below a signal light on the middle line.

In conjunction with symbol light
In GAME, AUTO – indicates play level.
In PROBLEM – indicates Phantom is seeking checkmate in number of moves shown.
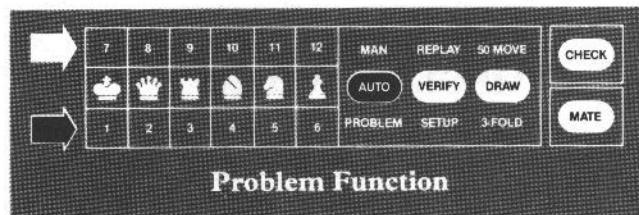
Problem Function

In conjunction with AUTO light
Top arrow – Phantom in MANUAL.
Bottom arrow – Phantom in PROBLEM.

Manual Function
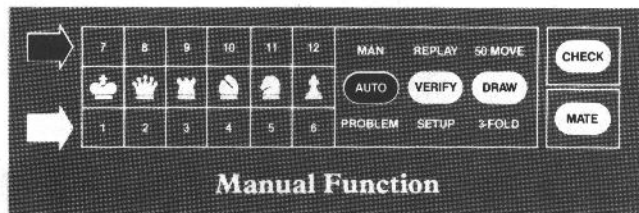
In conjunction with VERIFY light
Top arrow – Phantom in REPLAY.
Bottom arrow – Phantom in SETUP.

Auto Function
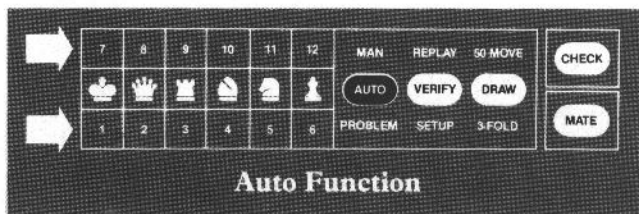
In conjunction with DRAW light

Top arrow (accompanied by five long bleeps) – draw, under 50 Move rule.

Bottom arrow (accompanied by five long bleeps) – draw by repetition of position.

③ SYMBOLS/NUMBERS

The symbols correspond to the chessmen. If you are unfamiliar with them, see Diagram 3. The symbol lights have many functions.

Steady symbol light with flashing Black/White light

In GAME, AUTO, MANUAL and PROBLEM – move is being made by that man.

Steady symbol light with steady Black/White light

In SETUP, movement of man indicated.

In VERIFY, man indicated is on square or Border Area symbol pressed.

Steady symbol light with steady arrow light

In GAME, AUTO and MANUAL – level of play.

In PROBLEM – number of moves to checkmate.

One or more symbols flashing

(a) *With Black/White light off*

In GAME, AUTO, MANUAL, PROBLEM indicates man being captured.

In SETUP, (after pressing pawn to "promote" it), flashing symbol will change each time CHANGE key is pressed. Phantom is asking which piece you want pawn to represent.

(b) *With Black/White light steady*

In GAME, AUTO, MANUAL

(i) King and rook flashing together – castling in progress.

(ii) Queen, rook, bishop and knight flashing in unison – pawn promotion but choice of piece not yet exercised.

In SETUP – you have option of replacing a pawn with piece whose light is flashing.

In VERIFY – Pawn representing this piece should be on square pressed.

(c) *With Black/White light flashing*

(i) Promotion to indicated piece.

(ii) Move by pawn representing piece indicated.

(iii) If pawn symbol, pawn is being moved to Border Area after promotion.

(d) *In all functions, with or without Black/White light*

All six symbols flashing at random indicate that Phantom cannot find the piece(s) where expected. Verify the position.

④ MANUAL

If AUTO lit in conjunction with top arrow, Phantom is in MANUAL.

⑤ AUTO

AUTO lit, but both arrows unlit – Phantom in AUTO.

AUTO lit with top arrow – see 4 MANUAL.

AUTO lit with bottom arrow – see 6 PROBLEM.

⑥ PROBLEM

If AUTO lit in conjunction with bottom arrow, Phantom is in PROBLEM.

(7) REPLAY

If VERIFY lit in conjunction with top arrow, Phantom is in REPLAY.

(8) VERIFY

VERIFY lit, but both arrows unlit – Phantom is in VERIFY.
VERIFY lit with top arrow – see 7 REPLAY.
VERIFY lit with bottom arrow – see 9 SETUP.

(9) SETUP

If VERIFY lit in conjunction with bottom arrow, Phantom is in SETUP.

(10) 50 MOVE

If DRAW lit in conjunction with top arrow, accompanied by five long bleeps, Phantom is signalling a drawn game under the 50 Move rule.

(11) DRAW

DRAW lit, accompanied by five long bleeps, but both arrows unlit – Phantom is signalling a draw by stalemate.
DRAW lit with top arrow – see 10, 50 MOVE.
DRAW lit with bottom arrow – see 12, 3-FOLD.

(12) 3-FOLD

If DRAW lit in conjunction with bottom arrow, accompanied by five long bleeps. Phantom is signalling a drawn game by repetition of position.

(13) CHECK

Lights up if check is given by either side. Stays lit until next move.

(14) MATE

Signal flashes accompanied by five long bleeps – checkmate.

KEY PANEL

When activating a dual key, always press within the white circle.

Press here
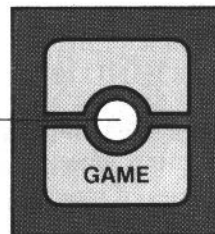
(15) ARROW

Lights when SHIFT is pressed to signify that next key pressed will be function in top row.

(16) SHIFT

Press to use function in top row. Arrow above will light to indicate this. To cancel, press SHIFT again. Once you have pressed a function key in the top row, after pressing SHIFT, the arrow light will automatically go out.

(17) STOP

Always preceded by SHIFT

This key is used to halt Phantom's actions. In GAME, AUTO use of the STOP key will cause Phantom to cease computing and to move at once. At Level 12 Phantom will not move until STOP is pressed.

Rearrangement of Men

Use of the STOP key will halt any rearrangement of the chessmen by Phantom. Examples: Phantom is repositioning the men for a new game, or is transferring men from the board to the Border Area in SETUP, or is transferring from the Border Area to the board in VERIFY. To resume automatic rearrangement of the men, press any square or key other than SHIFT, SOUND or VERIFY.

Taking Moves Back and Replays

Use key to stop Phantom when he is taking back or playing forward a series of moves, also to stop a replay.

Demonstration of Legal Moves

Use to stop demonstration of legal moves.

(18) LEVEL

This key is used to determine level of play in GAME or AUTO. Phantom has 12 levels of play (see page 14) and is set at Level 2 when switched on. Press LEVEL key ONCE to check level indicated by lit symbol and arrow. To change level, continue to press until desired level is reached. Press Level 12 to return to Level 1. Signal lights will go out when a move is made or another key pressed. Phantom will remain on level set until altered or switched off. In PROBLEM, level indicates number of moves required to checkmate. If key is pressed on Level 5, Phantom will return to Level 1 since Phantom does not attempt direct mate problems of six moves or more.

(19) NEW

Always preceded by SHIFT.

In GAME, AUTO, MANUAL, PROBLEM press to abandon game or problem in progress. Phantom will reposition men to start new game.
In SETUP, press to clear men from chessboard to Border Area.

(20) HINT

Press for hint when it is your move. Phantom will vibrate man he thinks should be played. Press when it is Phantom's turn, in GAME or AUTO, for indication of man Phantom is planning to move.

(21) REPLAY

Always preceded by SHIFT.

Press SHIFT/REPLAY and Phantom will return men to starting position (or position set up) and replay moves.
To replace men manually for a replay press SHIFT-REPLAY-VERIFY. Then press SHIFT/REPLAY again when ready for the replay to begin.

㉒ CHANGE

This function is used to switch sides or the side to move. At the start of a game, press CHANGE if you want PHANTOM to move first as WHITE. During a game, press CHANGE to change sides with Phantom.

In SETUP, press CHANGE if the Black/White light shows the wrong colour to move.

In SETUP, if you wish to use a pawn as substitute for a piece, press down with the pawn, then press CHANGE. Queen symbol will flash rapidly. At each press of CHANGE, piece symbol will alter. Complete pawn move when desired symbol is lit.

㉓ BACK

Always preceded by SHIFT.

Use this key to take back a move or moves. To take back a move, first complete it (including pawn promotion if applicable) then press BACK. Phantom will take the move back. To get Phantom to take back a series of moves, press SHIFT AND BACK twice in succession. To halt, press SHIFT and STOP. The BACK key can be used in conjunction with the FORWARD key to go back and forth in a game or position.

If you press a man at the start of a move and decide not to play it, there is no need to press the BACK key – press on the starting square a second time to cancel the move.

㉔ FORWARD

With this key, moves that have been taken back may be replayed forward. To replay a move taken back, press FORWARD once.

Press FORWARD twice and Phantom will continue to replay moves until halted by use of STOP key or until last position is restored. A replay that is halted can be resumed by pressing FORWARD.

㉕ SETUP

Always preceded by SHIFT.

Used to set up positions. Use of this key deletes Phantom's memory. In SETUP, a piece moved from one place to another does not have to comply with laws of chess. Use either to modify an existing position or to set up a new position.

Modifying existing position

Press SHIFT, SETUP. Move men as desired on board or between board and Border Area. Register all moves in the usual manner. Symbol lights will confirm men being moved.

Setting up new position

(a)*With all the pieces off the board*

To set up a position without first assembling the men on the board, press in sequence SHIFT, SETUP, SHIFT, NEW, VERIFY SHIFT, SETUP. Now set up position, registering each man **first** on the corresponding Border Area symbol, then on the square desired. Colour of last man placed will determine side to move. Put all other piece(s) in Border Area on appropriate symbols.

(b)*From play position*

Press SHIFT and NEW. Phantom will transfer

men to Border Area. If you wish to do this manually, press VERIFY. When you have moved men to Border Area, press SHIFT and SETUP to return to SETUP function.

New position can now be set up. Moves must be registered as usual.

To substitute a pawn for a piece

If you want a pawn to represent a piece when setting up a position, follow this procedure:

(i) Register the pawn.

(ii) Press CHANGE. Queen symbol will flash rapidly.

(iii) If queen desired, press down again with pawn on chosen square.

(iv) If a piece other than queen desired, continue to press CHANGE until appropriate symbol is lit, then complete move.

Phantom now recognizes pawn as piece chosen and will replace with the piece should it become available in subsequent play.

Changing Function

When desired position is set up, you will want to switch to another function. Before doing so, check that Black/White light correctly shows side to move. If not, press CHANGE. Position can be switched to GAME, AUTO, MANUAL or PROBLEM. In GAME, Phantom will assume that you move next. If you want Phantom to move next, press CHANGE after GAME. In any function the first move cannot be an **en passant** capture. If this option is desired, set up the position as it would have been one move earlier and make the pawn advance after switching out of SETUP.

(26) VERIFY

Used to check position of men on board or in Border Area.

Checking occupant of a square or Border Area space

Press VERIFY then on square/Border Area symbol. Piece symbol and Black/White signal will light to give identification. If square/Border Area space vacant, Phantom will indicate with a single bleep with no piece symbol lit.

Checking a position

Return all men on the board to Border Area, but do not register.

Press VERIFY twice and Phantom will set up position automatically. If VERIFY key is pressed in the middle of a move, that move will be negated unless it is committal (e.g. the king's move in castling). In the case of an incomplete pawn promotion, Phantom will assume promotion to queen.

Override facility

The VERIFY key can be used to override automatic return of men to Border Area (SETUP) or to the starting position (e.g. in REPLAY). Rearrangement can then be done manually.

(27) MANUAL

Always preceded by SHIFT.

In this game function, Phantom acts as arbiter. Moves of both sides must be made manually. Phantom will signal actions of both sides, as in GAME. All facilities available in GAME are also available in MANUAL – Phantom will give hints,

demonstrate legal moves, take back and replay moves on request.

Use MANUAL to study the openings. Make the moves for each side until desired position is reached, then switch to GAME.

(28) GAME

Phantom is in GAME mode (you against Phantom) when you switch on. This key is used to return to GAME after using another function. Unless instructed otherwise, Phantom always takes the black pieces.

(29) PROBLEM

Always preceded by SHIFT.

Position usually transferred from SETUP.

In PROBLEM, Phantom solves direct mate chess problems whose solutions do not exceed five moves. In this function, the Level on which Phantom is set equates to the number of moves to checkmate. If the problem cannot be solved in the number of moves set, Phantom emits a bleep and the Black/White light goes out. The PROBLEM function can also be used to discover whether there is a forced mate in five moves or less in a game position.

(30) AUTO

This key instructs Phantom to play a game, moving for both sides. The usual facilities such as HINT and REPLAY are available in AUTO.

If you press the AUTO key twice in a row, then Phantom will play game after game against himself until directed to stop.

(31) LEGAL

Always preceded by SHIFT.

Use of this key requires Phantom to demonstrate all legal moves of the man which is then registered. If the man has no legal move, Phantom signals ERROR.

(32) SOUND

Press once to silence audio signals. The ERROR signal can still be identified visually. Press again to restore sound.

BORDER AREA

Black pieces not in play should be placed on the right Border Area and White pieces on the left Border Area so that Phantom can keep account of them. Phantom likes the men to be placed in a certain order.

Rook, Bishop and Knight – first piece placed in the Border Area should occupy the outer symbol.

Pawn – first four pawns should be placed in the outer column, bottom to top; second four in same order on inner column.

If placed in a different sequence, Phantom will adjust.

Except when using the VERIFY function to clear the board manually, the appropriate symbol must be registered when a man is moved to or from the Border Area. Press on appropriate empty Border Area symbol to indicate promotion to a non-available piece.

Phantom, sturdily built and expertly designed, is a highly sophisticated electronic device that should be treated with great care so that it can operate efficiently. Here are some care and maintenance suggestions...

—the highly sensitized chessboard should not be touched with anything other than the chess piece bottoms or your fingers or deformation could result.

—the board and pieces must be kept clean with a dust-free cloth and a mild detergent. It is especially important to keep the bottoms of the pieces clean so that they can slide with ease. Never use wax to polish the unit or the pieces. If something does spill on the unit, clean it only with a damp cloth and mild detergent.

—the unit and its power supply are designed for indoor use only.

—the power supply should not be left plugged into the wall socket when Phantom is not in play. Always turn the unit's Power Switch off and unplug its power supply from the wall socket when you have finished playing.

—replace the protective cover when the game is not in use.

IMPORTANT: there are no customer serviceable parts in Phantom. Please refer to the warranty on how and where to send Phantom for repair.

Phantom is a tough chess opponent capable of beating most chess players. However, if you have now mastered him at the top level and would like him to give you an even stronger game, contact us for details on how his playing strength can be upgraded.

Customer Service Department

Dial the operator and ask for
"freephone Milton Bradley"

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