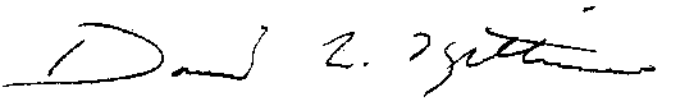
Dear Chess Player,

Congratulations on your purchase of the NOVAG™ SAVANT. You are now the proud owner of the chess computer that offers the most advanced technology to date with NOVAG's SENSOR-TOUCH-TECHNOLOGY®, which simplifies play to an extent that was thought impossible only a year ago. Alpha/numeric keys to enter your moves are a thing of the past, and mistakes due to hitting wrong keys are now eliminated. The 24K MYCHESS© programme satisfies the beginner as well as the master player, as it can be set to various levels of skill. On level 9 its play has the highest ELO-rating and can look up to 14 moves ahead, which is truly amazing.

From the very first move you will able to concentrate fully on your game. The piece symbols on the large LCD-chessboard are clear, distinct and easily identifiable (see Fig. 1). In addition, the LCD-chessboard offers a number of features which could not be carried out on a conventional chessboard. You will appreciate that you can trace back and forward through your game in a matter of seconds and even into the future. In the same manner you can review your present game or any of the classic games. This is truly unique.

The SAVANT is also a fully fledged chess tutor, as it can suggest a variety of moves to you and/or all legal moves possible, if you are faced with a difficult situation. Another learning feature is the Auto Play Mode, in which the computer plays games fully automatically at the set skill level, so you can watch the game develop and learn strategies.

You will learn to operate the SAVANT in a matter of minutes, however I recommend you read the 'General Hints' before you start to play. The following detailed instructions are laid out in such a way that each section is self-contained, so you do not have to read everything all at once.



David Kittinger
Author of MYCHESS® Programmes

TABLE OF CONTENTS PAGE

GENERAL HINTS

Take your computer out of the polyfoam packing and unwrap it including the AC adaptor. Please note that 2 spare bulbs for the backlight of the LCD-chessboard are also packed in the polyfoam for replacement of burned-out bulbs.

Before using the adaptor check that the voltage of your electric output is within the range specified on the adaptor label. A voltage fluctuation of more than 10% will create a flickering of the LCD-chessboard. In that case switch off the set and wait a while until the power supply has stabilized.

Warning: You must only use the adaptor included with your set, which has been specially developed for this computer.

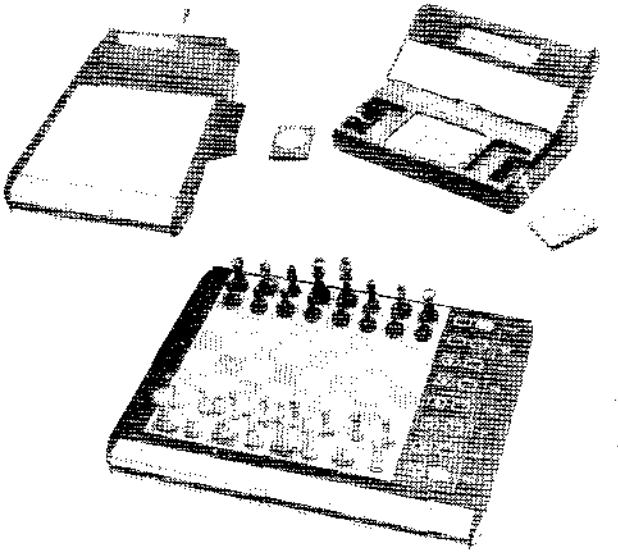
We recommend leaving on the dust cover to protect the LCD-board when the computer is not in use, as it also protects it from accidental damage.

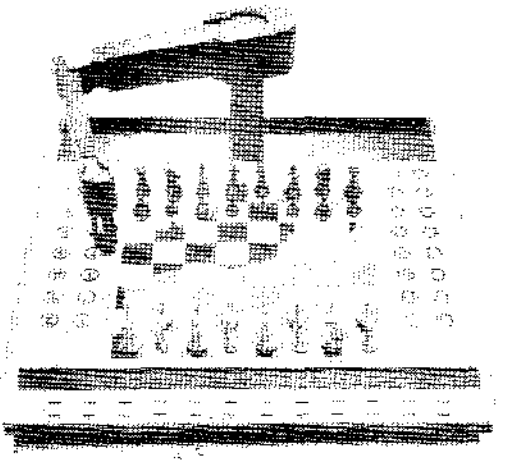
At the back panel of the unit are the adaptor sockets for the PRINTER and the SAVANT, the power on/off switch, light on/off switch, and the socket for the QUARTZ CHESS CLOCK.

Separately available accessories to the NOVAG™ SAVANT are NOVAG's QUARTZ CHESS CLOCK and CHESS PRINTER. The QUARTZ CHESS CLOCK can be used as a normal chess clock to time the game of two human players or it can be connected directly to the SAVANT and then registers the time of the computer and that of the human player automatically. The plug for the connector cable is also at the back panel of the computer. The QUARTZ CHESS CLOCK is programmed to accept all tournament time controls.

The NOVAG™ CHESS PRINTER can easily be connected to the SAVANT on the left hand side panel and prints every game automatically.

NOVAG'S QUARTZ CHESS CLOCK and CHESS PRINTER are also compatible with NOVAG's other chess computers, the SUPER SENSOR IV and the ROBOT ADVERSARY.





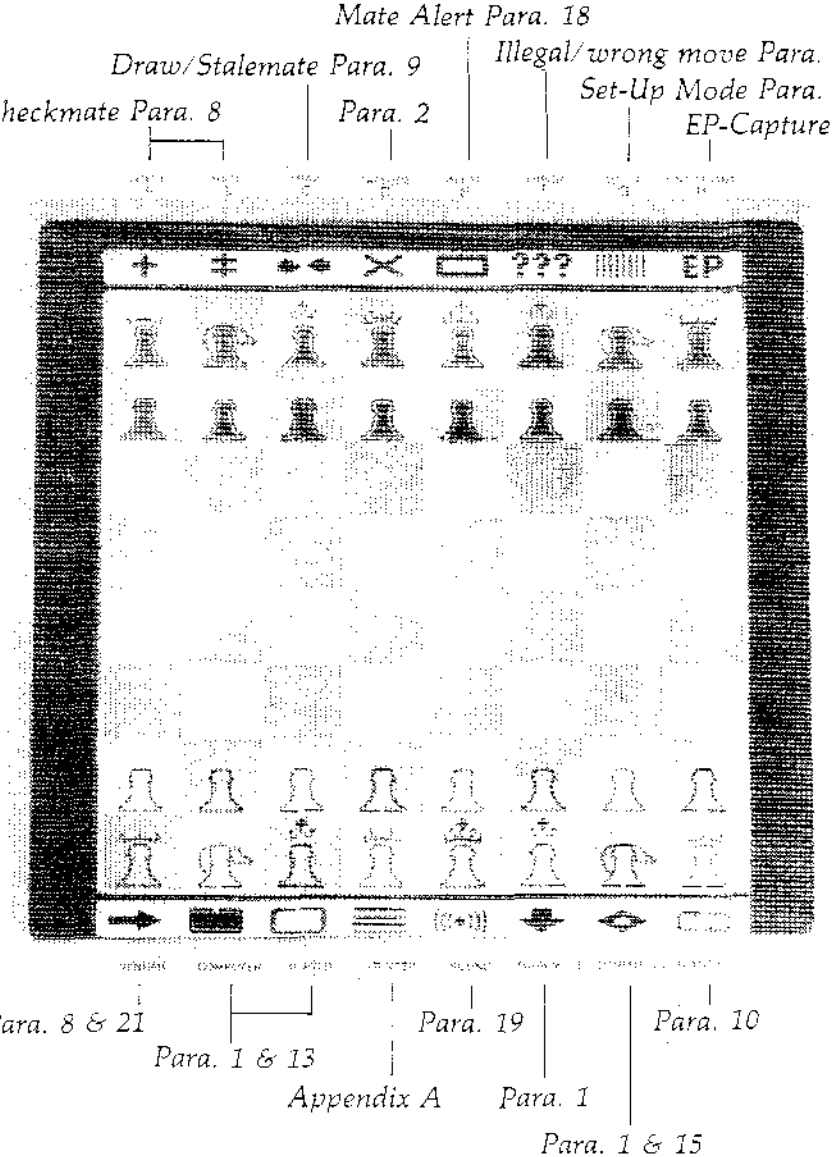
LCD-CHESSBOARD with SENSOR-TOUCH-TECHNOLOGY©

The LCD-chessboard (Liquid Crystal Display) consists of 32 light grey (white) and 32 green squares (black), (see Fig. 1). On the top and bottom are annunciator lines, which display specific information during the game, otherwise they remain blank.

The SAVANT's LCD-chessboard is the world's largest LCD-board used commercially to date. Specially developed sensors enable you to key in your moves directly on the chessboard. These are quite sensitive and are activated by a light touch only. Do not apply pressure to the LCD-board or hold a sensor down, as the computer will automatically register this as ERROR.

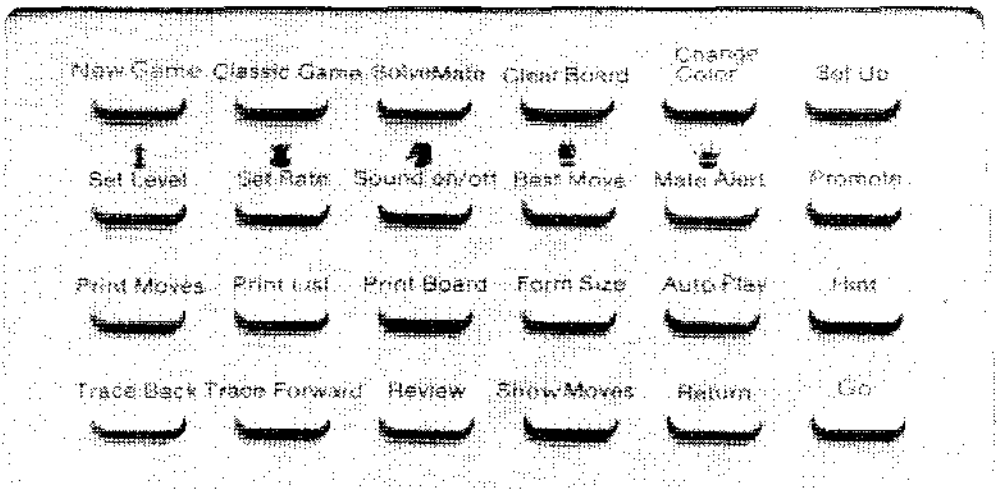
Although all units are quite sturdy, the LCD-board must be handled with care. It has been tested extensively and will give you years of trouble-free performance, if handled properly. *Do remember NOT to use pointed objects to key in your moves,* as they may scratch or puncture the overlay and damage the sensors or the LCD-display itself. Please note that any damage resulting from its misuse will invalidate the warranty.

Fig. 1



KEY BOARD

Fig. 2



The keys to be used in the Set-Up and Trace Mode as well as those to operate the printer are grouped together for easy operation.

C-MOS MEMORY (Longterm Game Memory)

Your SAVANT has a C-MOS Memory, which stores your last board position and the last 20 moves (10 moves for each side) when the unit is switched off and even the adaptor removed. This way you can interrupt a game if you do not have the time to finish it, and can continue within 3 months from where you left off.

Unless you have pressed NEW GAME before switching the SAVANT off, the LCD-board will display the last board position every time you switch the unit on again. You may then even review the last 20 moves of your previous game (10 moves for each side) (see Para. 10.C).

It will cancel your previous game only after you have pressed NEW GAME and made a move. In case you accidentally hit NEW GAME, you still can retrieve your previous game by switching the power off and then on again.

OPENING BOOK

The 24K MYCHESS[3] Programme in your SAVANT has a truly amazing opening book of up to 850 moves, to provide a wide variety of openings. A good opening may determine the success of your game. Some book openings are followed as many as 12 moves deep for each player.

Although no special opening can be chosen, most standard openings are incorporated into the programme. The computer will most probably recognize the opening you play and will follow it as long as you adhere to the standard moves and this does not entail disadvantages for the computer. In other words, book openings are not followed blindly, but the computer still tests and rates the moves. The openings are also randomized to provide variety of play.

INSTRUCTIONS

1. Beginning to Play

Connect the AC adaptor to the power outlet and the computer. Switch the power to ON and the backlight of the LCD-board ON if your light conditions are such that it gives you a better view of the LCD-board. Both switches are positioned on the back panel of the SAVANT. The computer is now ready to accept your *white opening move.*

Position yourself directly in front of the SAVANT, so that you see the chessboard and pieces clearly. Note that the LCD-display will offer optimum reading at this angle. Looking at the lower annunciator line you will see the arrow YOUR MOVE flash, indicating that the computer is awaiting your move. It will furthermore show that you are playing white and the computer black by displaying a black rectangle above the word COMPUTER and a white rectangle above PLAYER.

Press NEW GAME and the pieces are set in the opening position. Refer to Para. 3 to set the required skill level. Now touch the piece you want to move with your fingertip, right in the centre of the square.

You will hear a beep tone and the piece symbol begins to flash. Then touch the square you want to move to and the piece will appear on that square instantly, accompanied again by the same short beep tone. Your move has been entered, the COMPUTING symbol will light up on the lower annunciator line as long as the computer is thinking about its counter move.

When the computer executes its move automatically on the LCD-board you will hear 2 short beep tones and see the piece that is moved flashing twice on the 'from' and on the 'to' square. Then the arrow YOUR MOVE will start to flash again and the computer is ready to accept your *next* move.

In case you hear a low longdrawn tone when you enter your move and 3 question marks under ERROR light up on the upper annunciator line, it could be that you applied too much pressure on the LCD-board, or you did not touch the square in the centre. Try again by just touching the square right in the centre. If the computer still does not accept your move, you are trying to enter an illegal move (see Para. 4).

2. Capturing a Piece

If you can legally capture a piece, just execute your move as described in Para. 1. The computer will remove the captured piece automatically while you place your piece on that square. The computer captures automatically. During a capture the CAPTURE symbol on the upper annunciator line will be displayed.

3. SET LEVEL Key
Setting the Playing Strength

Your NOVAG™ SAVANT plays on 10 different levels of skill. Level 0 is the easiest, level 9 the strongest. The higher you set the skill level, the longer the computer will take to reply, but it will use this time to execute deeper analysis of positions and possibilities, and thus play a better game.

The sophisticated 24K MYCHESS® Programme was designed to also use the time you think about your next move, analysing positions, even taking *your* possible next moves into account. This and the fact that the SAVANT's microprocessors compute at extremely high speed, ensure a strong game and extremely fast response times compared with other chess computers.

You can set the level before commencing a game, after you pressed NEW GAME, or you can change and check it during the course of a game as often as you wish, everytime before you enter your next move.

As soon as you press SET LEVEL, your board position disappears and a number is formed out of pawns on the LCD-chessboard, indicating the level the computer is presently set to. Every time you press SET LEVEL you increase the level by 1. When you have reached level 9 and you press SET LEVEL again, you go back to level 0. Once you have set the desired skill level, press RETURN; the level is entered into the computer and the board position reappears on the LCD-chessboard so you can continue to play.

The computing of a move can be interrupted at any time to call off a move by simply pressing GO, however the computer will only give you the best move found up to that moment.

The average computing times are as follows:

Level 0 — 1 sec.
Level 1 — 1 sec.
Level 2 — 5-15 secs.
Level 3 — 45 secs.-1½ mins.
Level 4 — 2-2½ mins. TOURNAMENT LEVEL
Level 5 — 2½-3½ mins. TOURNAMENT LEVEL
Level 6 — 10-20 mins.
Level 7 — 1-2 hrs.
Level 8 — 5-10 hrs.
Level 9 — infinite (until GO key is pressed)

On level 4 and 5 you automatically play under tournament conditions. In level 4 the computer will average out the overall time to make 40 moves in 90 minutes and on level 5 40 moves in 2 hours. In this case it would be most helpful if you have the NOVAG™ QUARTZ CHESS CLOCK to exactly register your time as well as that of the computer.

On level 9 the computer can look up to 14 moves ahead (7 moves for each side). This level is designed to solve the most complex chess problems as it offers super analytical depth, fully utilizing the 24K ROM capacity of the programme, and thus operates without a definite reply time. The computer will display the move it has found so far once you press GO. It is quite safe to let the computer think for *hours* or *days* if you have confronted it with a complex problem.

Please note that within the different skill levels the computer will answer relatively fast if the board position is a simple one. In more complex middle game situations the computer requires more time for analysis. Towards the end, when fewer pieces are on the board, the computer's response time will speed up again.

If you start a new game, the previously set skill level will be retained, regardless of whether the computer was switched off or not.

4. Illegal Moves

The NOVAG™ SAVANT is programmed in accordance with international chess rules and does not accept or make illegal moves.

If you try to enter an illegal move or try to enter a move while the computer is computing, it will not move the piece touched by you. In addition you will hear a low longdrawn tone and 3 question marks appear on the upper annunciator line under ERROR.

If you try to key in a move while the SAVANT is computing a move, just wait till the computer has executed it. Then the 3 question marks will disappear and you may enter your next move.

However, if the arrow above PLAYER indicates that it was your turn to move, check in which way your move was illegal. The most common mistakes are that you tried to move to a wrong square, did not move your king out of check or tried to castle through or out of check. You do not have to correct your previously intended move, just enter a legal move and the ERROR annunciator disappears.

5. Castling

The computer executes castling automatically. You castle by entering the king's move only, the computer will move the rook automatically.

The computer even accepts and executes castlings in a set-up board position (see Para. 11).

6. En Passant

If you or the computer make an en passant capture it will remove the captured pawn automatically. During an en passant capture the EP symbol on the upper annunciator line will be displayed.

The computer also accepts and executes en passant captures in a set-up board position (see Para. 11).

7. PROMOTE Key
Pawn Promotion or Underpromotion

If one of the pawns (white or black) reaches the far side of the board, the computer will promote it to a *queen* or a *knight* automatically, depending which piece seems to be more advantageous. The promotion to a knight or any other piece is called underpromotion.

After the computer has automatically promoted/underpromoted one of *your* pawns it will continue to compute its next move. Should you prefer a different piece, press PROMOTE and then the desired Piece Symbol Key even *while* the computer is computing. The move under computation will be cancelled instantly and the computer will compute a new move after the promotion/underpromotion of that piece.

In case the computer has already made its move before you press PROMOTE, this move will automatically be taken back as soon as you press PROMOTE and a new move will be computed after your promotion/underpromotion has been carried out.

The computer will accept and execute pawn promotions/underpromotions in set-up board positions.

8. CHECK and CHECKMATE

If one of the kings is in check, the CHECK symbol on the upper annunciator line will light up.

Checkmate is announced by flashing the international CHECK and MATE symbols on the upper annunciator line and a continuous beep tone. At the same time the WINNER annunciator will point to the winning colour on the lower annunciator line.

In a checkmate situation the computer will not accept any more moves and you have to press NEW GAME. But it allows you to trace back and forward through your game for analysis (see Para. 10.A. and B.).

If the computer plays against itself in Auto Play Mode, and a checkmate ends the game, the CHECK and MATE symbols light up briefly accompanied by 3 short beep tones. Then the computer resets itself automatically and starts a different new game.

9. DRAW and STALEMATE

Draw or stalemate is announced by two arrows pointing to each other under DRAW on the upper annunciator line and a continuous beep tone.

The printer (if attached) will print out whether it was a draw due to insufficient material, by the 3 or 50 move repetition rule or a stalemate.

STALEMATE	—	*Stalemate*
½ DRAW ½	—	*Draw*
3RD REPETITION		*by 3-move repetition rule*
50 MOVE LIMIT		*by 50-move rule*
INSUF MATERIAL		*by insufficient material*

SPECIAL FUNCTIONS

10. TRACE and REVIEW MODE

Trace and Review Mode provide exciting new dimensions of reviewing, take-back, and correcting features, that can be executed only on the SAVANT's LCD-board with such ease and speed. This together with the ability to store every move in a game, offers a unique training feature. You may *trace back* and *forward* through your game as often as you wish, and as of level 2 even *into the future* to see how the game may develop. You may play from any given point in the game to correct a mistake or to play with a different strategy.

Once you are in Trace or Review Mode, the trace annunciator appears on the lower annunciator line above TRACE MODE.

Note: The printer switches itself off automatically once you go in Trace or Review Mode. It will restart printing, as soon as you enter a move or call off a computer move.

10. A TRACE BACK Key
Taking Back Moves
Tracing Back Through a Game

The TRACE BACK key enables you

1. *to take back any number of moves desired in the present game*
2. *to trace back through the game to analyse it or search for strategical mistakes, which you may want to correct.*

To operate, press TRACE BACK before you make your next move. Every time you press this key, it will take back one move. If you hold the TRACE BACK key down, it will go back through the entire game automatically until you release the key or until you have reached the opening position.

In case you want to continue a game that was stored in the C-MOS Memory, the computer allows you to take back or review the last 20 moves (10 moves for each side).

After you stop taking back moves you can continue to play with a different strategy from that point in the game. *You* may enter your next move if the PLAYER annunciator so indicates. If the computer's side is to move, call off a computer move by pressing GO before you enter your next move.

In Trace Back Mode the SAVANT does not cancel the moves taken back, so if you wish to return to your previous board position instantly, you may do so by pressing RETURN. However, if you wish to trace forward to the previous position move by move, see Para. 10.B TRACE FORWARD Key.

10. B TRACE FORWARD Key

Trace Forward Mode offers two valuable features. It allows you

1. *to trace forward through the game you just played back*
2. *to trace several moves from your present position into the future to display how the game may develop (not on level 0 or 1 — unless you are in check. The computer will then show you the best way to get out of it!).*

10. B. 1 Trace Forward Function
Replaying a Game

To trace forward through the game you played back before, use the TRACE FORWARD key. Each time you press this key, the computer will advance by one move. If you hold the TRACE FORWARD key down, it will advance through the game and into its future, move by move, until you release the key or until it has finished its predictions about the development of the game.

If you do not want to trace into the future, release the key when the last move previously made by the computer has been reached. You may now enter your next move.

If you instantly want to return to the position from where you traced back, press the RETURN key. You can now enter your next move.

10. B. 2 Tracing into the Future

If you want to see how the SAVANT predicts the development of the game in progress, it enables you as of level 2 to look several moves into its future. The computer will display pre-analysed moves for each side, the number depending on the skill level set and the complexity of the situation. For example on level 9, the computer can look up to 14 moves ahead.

To trace into the future, wait until the computer has executed its move, then press TRACE FORWARD. Each time you press TRACE FORWARD, the computer will advance one move until the pre-analysed moves are exhausted. Should you decide to continue to play from this board position, check whose side is to move and either call off a computer move by pressing GO, or enter your next move.

To return instantly to the position from where you left the game, press RETURN. You can now enter your next move.

Note: If you are put in check by the computer on level 0 or 1, the computer will show you the best way to get out of check if you use Trace Forward Mode.

10. C REVIEW Key

The REVIEW feature may be used

1. *to review Classic Games incorporated into the SAVANT's 24K MYCHESS® Programme or from NOVAG's future Classic Game Modules*
2. *to review the game you are presently playing.*

The Review Mode is similar to Trace Mode, however you can return to the opening position at once, instead of tracing back through the whole game, and then replay it automatically.

10. C. 1 Reviewing Classic Games

After you have chosen the Classic Game you want to review (see Para. 21) press REVIEW and the computer will automatically replay the game at the speed set by you (see Para. 12). If you want to stop the review, e.g. in order to study a particular board position, press REVIEW. To continue, press REVIEW again.

10. C. 2 Reviewing your Present Game

To review the game you are presently playing, press REVIEW before you enter your next move. The computer will instantly display the opening position and automatically start to replay the game at the speed set by you (see Para. 12).

If you want to continue a game that was stored in the C-MOS Memory, you may review the last 20 moves (10 moves for each side). As soon as you press REVIEW, the computer will display the board position 20 moves back and then replay them automatically up to the present board position.

11. SET-UP Mode

This mode is designed to enable you to

1. *set handicaps by removing or entering a piece (Para. 11.A and 11.B)*
2. *change the position of a chess piece or pieces (Para. 11.C)*
3. *clear the board and set-up a board position to solve chess problems (Para. 11.D)*

While in Set-Up Mode, the SET-UP symbol will be displayed on the upper annunciator line.

During Set-Up Mode the computer's legality check is disabled, and you can therefore enter, remove or change the position of any piece you wish.

The computer will accept and execute castling, pawn promotions and en passant moves if you play from a set-up board position.

Hints:

Please note that you can only go in Set-Up Mode before you enter your (next) move. So the computer will always *retain the colour* to move next *before* you went into Set-Up Mode. If you have played white, the colour to move first after SET-UP, will be white.

If you want to play black, first press CHANGE COLOUR and GO so the computer will make a white move. The colour to move first after SET-UP, will therefore be black.

If you want to change sides after Set-Up Mode, you may do so by pressing CHANGE COLOUR and call off a computer move by pressing GO.

11. A Removing a Piece

If you wish to remove one or more pieces during a game to set a handicap, wait until the computer has executed its move. Now press SET-UP and touch *twice* any piece(s) you want to remove. They will instantly disappear from the board.

To get out of Set-Up Mode, press SET-UP again and the computer can accept your next move.

If you are already in Set-Up Mode, you may eliminate any piece on the board as described above.

11. B Entering a Piece

To enter one or more pieces during a game to set a handicap, wait until the computer has executed its move. Then press SET-UP to bring the computer into Set-Up Mode. Check on the lower annunciator line, which colour may be entered. Enter all piece(s) of this colour by pressing each Piece Symbol Key and the square on the LCD-board you want to put this piece on.

To enter the pieces of the other colour, press CHANGE COLOUR. Enter all pieces of this colour as described above.

To get out of the Set-Up Mode press SET-UP again and the computer can accept your next move.

If you are already in Set-Up Mode, you may enter any piece on the board as described above.

11. C Changing the Position of a Piece

If you wish to change the position of one or more pieces during a game, proceed as follows. Press SET-UP after the computer has executed its last move. You can now move the piece(s) on the LCD-board as if you were entering an ordinary move.

Remember that the legality check is disabled in the Set-Up Mode, so you can move the pieces around as you wish. To get out of Set-Up Mode, press SET-UP and enter your next move.

This is a particularly convenient way to set up a situation that does not vary too much from the opening position. It may be faster to change the positions of a few pieces compared to clearing the entire board and entering each piece on the empty board.

11. D Clearing the Board and Setting-Up a Board Position

If you want to enter a special board position, e.g. to solve a chess problem, and there are only a few pieces left on the board, the following is the fastest way to set up the required position. Before you go into Set-Up Mode determine the colour that is to move first once out of Set-Up Mode (see 'Hints' under Para. 11). This is also the colour for which the computer will execute a mate-search.

Press SET-UP and then CLEAR BOARD. You are now in Set-Up Mode and have cleared the entire board except for the two kings.

Now enter all pieces as described under Para. 11.B. and change the position of the two kings, if required, as described under Para 11.C. To get out of Set-Up Mode, press SET-UP and enter your next move.

12. SET RATE Key

The SET RATE key is used to set the speed of the Review Mode (Para. 10.C) and SHOW MOVES (Para. 20). You can set the rate from 1 to 9, whereby 1 is the slowest and 9 the fastest.

Press SET RATE before or during the review of a game. A number made up of pawns appears on the LCD-board, indicating the rate the computer is set to presently. Every time SET RATE is pressed, the rate increases by 1. When rate 9 is reached and SET RATE is pressed again, you go back to rate 1. Once you have set the desired rate, press REVIEW again and the review will automatically continue at the new rate set. In case you changed the speed of Show Moves, press RETURN.

13. CHANGE COLOUR Key

If you wish to play black and the computer white, press NEW GAME and CHANGE COLOUR. The computer will switch the white and black pieces around so that the black pieces are in front of you as on a normal chessboard. The COMPUTING annunciator is now flashing, indicating that you have to call off the computer's white opening move by pressing GO. Then you can enter your black move and the computer will automatically reply with a white move.

You can also take over the computer's part during the course of a game and change colours as often as you wish. Wait till the computer has executed its move and press CHANGE COLOUR. The pieces will change around on the board again and you now have to call off a computer move by pressing GO. After that you can enter your move for the new colour.

Please note the algebraic notations along the LCD-chessboard cannot change, as they are permanently engraved into the aluminium cabinet. So when you play black you have to disregard them.

Both the NOVAG™ QUARTZ CHESS CLOCK and the CHESS PRINTER will automatically accommodate the change of colour.

14. HINT Key
Move Suggestions

With Hint Mode the SAVANT offers an exceptional tutoring feature as it can suggest moves if you are not sure how to continue your game. You may also call off all moves legally possible in your present position, while the computer will rate the moves, first showing the one that has in his opinion the highest rating.

To call off move suggestions, wait until the computer has executed its move. Press HINT, and the computer will show the best suggested move by flashing the piece 3 times on the 'from' square and then on the 'to' square, until you cancel it or call off another move suggestion. The computer will display another move everytime you press HINT, until it went through all moves legally possible. Pressing HINT again will repeat the process.

If you want to accept a suggested move, press GO to enter it into the computer. If you want to get out of the Hint Mode, press RETURN. You can now enter any move you feel appropriate.

Please note that the printer (if attached) switches itself off automatically during Hint Mode.

15. AUTO PLAY Key
The Computer plays against itself

In Auto Play Mode the computer will automatically play random games against itself on the skill level set, so you can watch games and strategies develop.

You can commence a game in Auto Play Mode or switch to it at any time during a game. To go into Auto Play Mode, press AUTO PLAY and the COMPUTING symbol on the lower annunciator line comes on. You can now observe the computer making the moves for both sides. To stop, press AUTO PLAY again. Before you continue your game check if you can enter a move or have to call off a move from the computer by pressing GO.

In Auto Play Mode, the computer will finish a game, indicate a draw, stalemate or checkmate by lighting up the respective symbol(s) on the upper annunciator line and give 3 short beep tones. It will reset the board and start another random game on the skill level previously set by you. Thus it will play itself continuously, without repeating a game, while you do not have to touch a single key.

The computer's reply time in Auto Play Mode is determined by the skill level set. However, since the computer plays extremely fast on the lower levels it might be easier to follow the game if you set a higher skill level. If you want to see the moves the computer is analysing for both sides, you may press the SHOW MOVES Key (See Para. 20).

16. BEST MOVE Key
Additional Random Selector

Computer programmes are designed to compute and compare possible moves. They will typically choose the move with the highest rating, while the depth of the analysis is determined by the skill level (deeper analysis on higher skill levels). Although the SAVANT has a strong random selector, this may not always lead to the desired variety in your game, especially if you play from set-up board positions, and want to try various strategies.

For that reason the BEST MOVE key was developed to act as an *additional random selector.*

If BEST MOVE is switched-off (1 short beep tone), the computer will choose one move at random out of the strongest moves according to its computed ratings. However, if the BEST MOVE key is switched on (2 short beep tones) it will always display the best move, namely that with the highest computed rating at the set skill level.

17. SOLVE MATE Key
Chess Problems

Your SAVANT with the 24K MYCHESS® Programme has the ability to solve chess problems from mate-in-2 up to mate-in-7-moves. It can even solve chess problems that require castling, en passant moves and pawn promotions including under-promotions.

It is unique that the computer will first tell you if there is a solution to your problem or not. If the answer is positive, it will mate you in those number of moves regardless which moves you make.

Before setting-up your chess problem determine the colour to move first. This is also the colour for which the computer will execute the mate search (see 'Hints' Para. 11). Now enter the board position as described in Para. 11.C. or 11.D. The computer does not have to be set on any particular skill level to solve mate-problems, as it will automatically adjust itself.

Press SOLVE MATE and a number made up of pawns is displayed on the LCD-board. Everytime you hit SOLVE MATE, the number will advance by one. Once the required number is displayed (e.g. 3 for a mate-in-3-moves problem), press GO and the computer will start its search.

If your computer cannot find a solution, you will hear low longdrawn tones and the CHECK and MATE symbols will slowly blink alternatively on the upper annunciator line.

If there is no solution, e.g. to mate-in-3, you may now check for a solution to that problem in 4 moves. Press SOLVE MOVE, set it to 4 and hit GO. This is particularly convenient, as with most other chess computers, you would have to go through the trouble of setting-up the board position again.

In case the computer finds a solution, the CHECK and MATE symbols will blink alternately at a fast frequence accompanied by beep tones. The computer will automatically make the first move for the colour to move first and will definitely mate you in at least the set number of moves, regardless whatever moves you enter.

The search times required by the computer naturally vary whether you look for a solution for a mate-in-2 or a mate-in-7-problem. They also depend on the complexity of the situation. Average reply times are:

Mate-in-2 — 1-3 secs.
Mate-in-3 — 1/2-2 mins.
Mate-in-4 — 3-10 mins.
Mate-in-5 — 30-90 mins.
Mate-in-6 — 5-10 hrs.
Mate-in-7 — 24 hrs-6 days.

If you try to solve a mate-in-7-problem, just leave the computer on and check from time to time if the CHECK and MATE symbols have come on.

18. MATE ALERT Key

MATE ALERT warns you that the computer has seen a danger of you being mated in his look-ahead, so be careful! When this happens the ALERT symbol on the upper annunciator line comes on.

If you press MATE ALERT, 2 short beep tones indicate that it is operational. 1 short beep tone indicates MATE-ALERT is switched off.

19. SOUND ON/OFF Key

As acoustic signals may be disturbing while you are playing, they can be switched off with the SOUND ON/OFF key. The SOUND symbol on the lower annunciator line will light up if the sound is switched on. If the space is blank, the sound has been switched off.

20. SHOW MOVES Key

It is particularly fascinating to watch the moves the computer is thinking about until it decides on a move, while SHOW MOVES is switched on. The speed of the display of moves under consideration can be adjusted with the SET RATE key from 1 to 9 (see Para 12). Needless to say, with SHOW MOVES on, the average reply times for the different skill levels will be greater. You can also use the SHOW MOVES key in Auto Play Mode.

When you press SHOW MOVES and you hear 2 beep tones it is switched on. 1 beep tone indicates it is switched off.

21. CLASSIC GAMES Key

Incorporated into the 24K MYCHESS® Programme are 16 Classic Games. If you press CLASSIC GAMES two columns of pawns will appear on the LCD-board, each square being the key for 1 game:

Choose the game you want to review from the list below and press the respective square. The opening position will be instantly displayed. Now you may review the game as described in Para. 10.C. or trace through it at your leisure with the TRACE FORWARD key (see Para. 10.B). At the end of the game the WINNER symbol on the lower annunciator line will indicate which side has won.

The notations stand for the following games:

COORDINATES	TITLE/DESCRIPTION
B1	BORIS SPASSKI VS. BRONSTEIN. *One of the great attacking games of modern chess.*
B2	VASILY SMYSLOV VS. MIKHAIL BOTVINNIK. WORLD CHESS CHAMPIONSHIP 1958. *A subtle game of threats. In the final position, Botvinnik may save his Bishop, but after move 25 QxP, how is he going to save the Knight?*
B3	MIKHAIL BOTVINNIK VS. PAUL KERES. WORLD CHESS CHAMPIONSHIP 1948. *A championship exploitation of Black's 11th and 12th Move.*
B4	TIGRAN PETROSIAN VS. PACHMAN. *The unexpected Queen sacrifice at Move 19 makes this a gem of a game.*
B5	DR. ALEXANDER ALEKHINE VS. DR. EMANUAL LASKER. WORLD CHAMPIONSHIP MATCH 1934. *A harmonious series of moves from White's Move 18 to the Queen sacrifice.*
B6	PAUL MORPHY VS. DUKE OF BRUNSWICK, 1858. *A classic game by America's first true chess prodigy.*
B7	ARNOLD VS. TCHIGORIN. ST. PETERSBURG, 1885. *Can you find the mate in 3 at Move 29 for Black?*
B8	ANDERSSEN VS. DUFRESNE. *Beautiful combination starting at Move 17.*
C1	BELLE VS. CHAOS. PLAYOFF FOR 1980 WORLD COMPUTER CHESS CHAMPIONSHIP. *And what happens when computer faces computer? This tactical game was the result of a playoff between two of the strongest laboratory chess computers in the world.*
C2	BOBBY FISCHER VS. EFIM GELLER. ALEKHINE MEM. TOURNAMENT, 1961. *A couple of novel moves by Black are neatly refuted.*
C3	BOBBY FISCHER VS. MIKHAIL TAL. INTER. TEAM TOURNAMENT, 1960. *Not all Grandmaster drawns are dull. Here two brilliant tacticians give us a formidable display of chess fireworks.*
C4	LETELIER VS. BOBBY FISCHER. INTERNATIONAL TEAM TOURNAMENT, 1960. *Black provokes White to advance, then counter-attacks. The winning line beginning at Move 21 is particularly attractive.*
C5	DONALD BYRNE VS. BOBBY FISHER. ROSENWALD TOURNAMENT, 1956. "THE GAME OF THE CENTURY" — For good reason. *The 13-year old Bobby Fischer stunned the chess world with this game which has been called the Game of the Century. The series of moves initiated by Black's 11th Move, which has the appearance of a blunder, is one of the deepest combinations ever played in the history of chess.*

C6 BOBBY FISCHER VS. LAPIKEN. US OPEN CHAMPIONSHIP
1956 — A very mature game for a 13-year old boy. Bobby Fischer's 14th to 17th Moves show his future promise.

C7 MIKHAIL TAL VS. MILEV.
A fine demonstration by a master tactician.

C8 BENT LARSEN VS. BORIS SPASSKI.
Larsen is well known for somewhat unorthodox play. Here he is brilliantly punished.

Please note that most games do not end with a draw, stalemate or checkmate as the loser resigned beforehand. (Not applicable to games B6, B7, B8 & C5.)

APPENDIX

A. Operating the Printer

NOVAG's CHESS PRINTER is a separately available accessory, which can be plugged into the SAVANT on the left hand side. The printer is a convenient and valuable tool to record your games automatically.

It is operated from the SAVANT with the keys PRINT MOVES, PRINT LIST, PRINT BOARD, FORM SIZE. In order to switch the printer on, press PRINT MOVES and the PRINTER symbol will come on, shown on the lower annunciator line. The game is now automatically printed out as it progresses. If you want to print a Classical Game, you have to press PRINT LIST.

The printer can be switched on at the beginning of a game or during a game and will always print out the first move with the correct move number. If you start the printer while a game is in progress e.g. after move 15, it will show move no. 16 and the coordinates.

Because of the C-MOS-Memory, you can also get a complete print out of your game during the contest or after it is finished by pressing PRINT LIST. This is particularly convenient as the printer noise may disturb you or you simply forgot to switch it on! The printer can print in two different forms. In the short standard form a white and black move is printed on each line under the respective headline. In the long form, each player's move is printed in one line together with the symbol of the piece moved. The format is changed by pressing FORM SIZE. The printer will also print the following information during the course of the game:

WHITE	*BLACK*	— *Headline*
0-0, 0-0-0		— *Castlings*
X		— *Capture*
EP		— *En passant capture*
CK or +		— *Check*
CHECKMATE		— *Checkmate*
— I WIN		*Computer*
— YOUR GAME		*Player*
STALE MATE		— *Stalement*
1/2 DRAW 1/2		— *Draw*
— INSUF MATERIAL		*Draw due to insufficient material*
— 3RD REPETITION		*Draw by the 3rd repetition rule*
— 50 MOVE LIMIT		*Draw by the 50-move rule*

In Classic Games and Auto Play Mode the end of the game is indicated by

YOUR GAME — *Player*
I WIN — *Computer*

The computer assumes in these cases that the upper side of the board represents the computer's side.

Also note that the WINNER symbol on the lower annunciator line is pointing to the colour that has won the game.

In order to get a print out of the board position, wait until the computer has executed its move. Press PRINT BOARD, and the board position will be printed out. After that you can enter your next move.

To bring the paper forward, just pull it and tear it off, if required.

Note: The printer is automatically switched off when you go into Trace, Review, Hint, or Set-Up Mode and will restart printing as soon as you enter a move or call off a move from the computer.

The printer will also accommodate a change of colour. However, you have to disregard the notations engraved along the LCD-board if you play black.

B. Exchange of LCD-Backlights

The backlight for the LCD-chessboard consists of 9 tiny light bulbs. They are mounted on the removable door located on the back of the unit marked LIGHT DOOR. The bulbs are of very high quality to ensure a long life span. However, the likelihood exists that one may burn out over the years. For easy replacement 2 spare bulbs are supplied with the computer in the polyfoam packing.

Once you notice that the backlight of the LCD-chessboard is darker in one area, chances are, that a light bulb has burned out. Switch off the computer and turn it over carefully.

Remove the LIGHT DOOR (which is only clipped in) with particular care. DO NOT touch anything inside the SAVANT. Unscrew the burned out bulb and replace it with a spare one. Now close the door until it snaps in.

Please note that the changing of burned out backlight bulbs is NOT covered by the warranty, as spare bulbs are supplied and easy exchange is provided for. Should you need further bulbs obtain them from your electronic retailer or our service centres (address see enclosed Warranty Card).

C. Exchange of Programme Modules

The SAVANT is equipped with ultra-modern modular technology, meaning the micro processors are only clipped into specially designed sockets, so they can be taken out easily. As programming technics advance rapidly, these interchangeable programme modules enable you to up-date your software in future, without having to buy a new chess computer.

The 24K MYCHESS© Programme contained in the SAVANT is masked onto 3 micro processors, each having a capacity of 8 KB ROM (Read Only Memory). In addition there are 3 empty sockets, each designed to accept 8KB ROM to provide for future programme extention/exchange up to 48 KB ROM or for Classic Game Modules.

To get to the micro processors or the additional sockets, open the door at the back of the unit marked ROM DOOR. You will note that the micro processors and all sockets are colour coded for easy identification.

Further instructions will be supplied with future modules.

D. The Adaptor

You must use the adaptor which NOVAG specially developed for the SAVANT. The use of another adaptor automatically invalidates the warranty.

The adaptor has passed rigorous tests, however in the course of its operation it may warm up, which is to be expected and is within legal limits. This does not affect its operation.

E. Care of the NOVAG™ SAVANT

Dirt or dust can be removed with a soft cloth. Do not use any chemical solvents or water on the set. Any damage caused by their use invalidates the warranty.

Always keep the computer in a dry and cool place (normal room temperature). Avoid exposing the computer to heat, e.g. spot lights, radiators, sunshine etc. as this may lead to permanent damage caused by overheating, which is not covered by the warranty.

F. Warranty

For details please refer to the enclosed Warranty Card.

G. Technical Data

Operating Voltage:	8.5 AC (through AC to AC adaptor)
Current Consumption:	1.5 A max.
Storage Temperature:	-40° to +70°C
Operating Temperature:	0° to 40°C
Memory Back-Up Voltage:	2.4 V DC
Read Only Memory:	24 KB
Extendable to:	48 KB
Random Access Memory	32 K BIT

All data subject to change without notice.