

 **KASPAROV**TM
C H E S S C O M P U T E R

 **Owner's Manual**

Analyst C ModuleTM

 **Swiss-led
Precision**

Dear Chess Player,

Congratulations on purchasing this latest Analyst Module!

This new stronger program pays considerable attention to pawn structures and advanced pawns. It is more knowledgeable about the Kings safety and when to march the King out. The openings library is broader and contains some interesting new sharp lines.

It is also more skilful at positioning the Queen and Bishop for maximum effect as well as co-ordinating King-side attacks.

Sehr geehrter Schachfreund,

Wir gratulieren Ihnen zum Kauf des neuen Analyst Moduls.

Dieses neue stärkere Programm achtet erheblich auf Bauern Strukturen und vorgerückte Bauern. Es ist kenntnisreicher in Sicherheit des Königs und wann der König das Brett aufmarschieren soll. Die Eröffnungsbibliothek ist umfassender und enthält mehrere interessante und neue scharfe Variationen.

Es ist auch geschickter bei dem Aufstellen der Königin und des Läufers zum Höchsteffekt, und bei der Koordination des Königsangriffes.

Cher joueur d'échecs,

Félicitations avec l'achat du nouveau Module Analyst.

Ce program nouveau et plus fort fait attention considérable aux structures des pions et aux pions avancés. C'est plus au courant de la sûreté du roi et sait meilleur quand le roi doit avancer sur l'échiquier. La bibliothèque des ouvertures est plus extensive et contient plusieurs nouvelles variations qui sont intéressantes et exactes.

C'est aussi plus adroit en positionnant la reine et le fou avec effet maximum, et en coordonnant des attaques contre le roi.

Beste Schaakvriend,

Mogen wij u gelukwensen bij de aankoop van de nieuwe Analyst Module.

Dit nieuwe sterkere programma besteedt aanzienlijke aandacht aan de pionstructuur en aan vooruitgeschoven pionnen. Het weet veel meer over de veiligheid van de koning en wanneer de koning het bord op dient te marcheren. De openings bibliotheek is breder opgezet en bevat een aantal interessante nieuwe scherpe variaties.

Het is ook behendiger in het posteren van de koningin en bischop tot maximaal effect en in hun coordinatie bij de konings-aanval.

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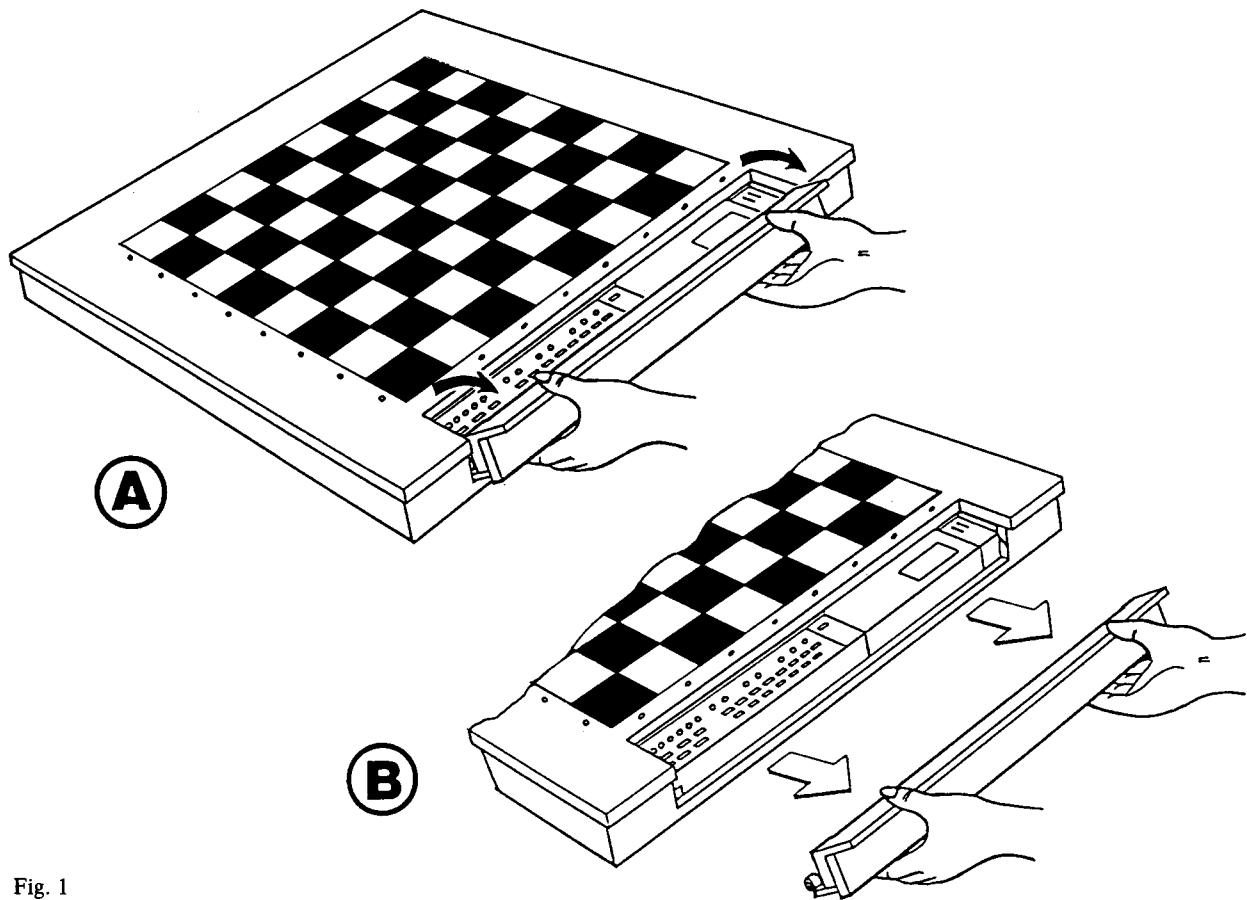


Fig. 1

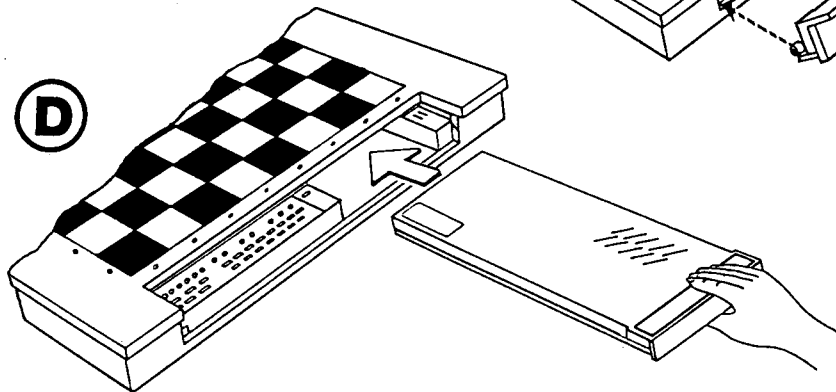
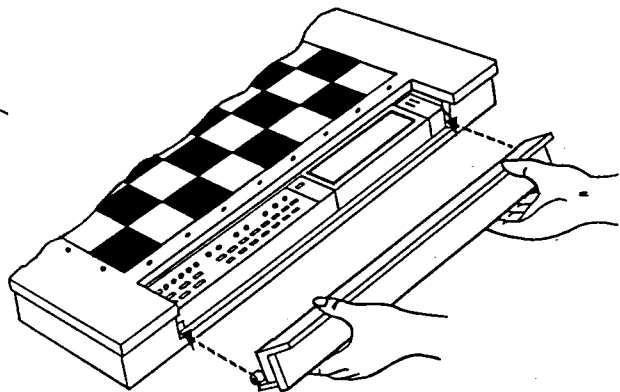
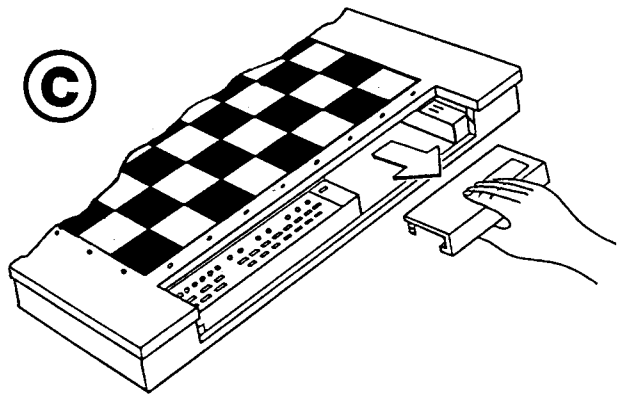


Fig. 2

Introduction

The Analyst Module increases Leonardo's playing strength to over 2,000 Elo points. The program includes the new Kasparov Openings Library of some 100,000 opening sequences, controlled by the Automatic Transposition Manager (ATM). Its playing style is very different from the basic Leonardo, with deep positional knowledge and a powerful endgame. The program searches in a different way, using less full-width search (what you see with the Info function) and more extensive selective search.

It provides another 24 playing levels, in addition to the 32 levels in the basic Leonardo. This allows you to vary the style of play, and even play the two programs against each other, e.g. playing level A5 against level E4. Leonardo's User Programmable Library (UPL) is fully available to the Analyst Module, with its own ATM, yielding a truly formidable combination of openings.

Analyst is available with a 4, 6 or 8 MHz (MegaHertz) processor. Its memory capacity is unique. Analyst is a chess computer with over 100 Kb (Kilobytes) of memory space, of which 64 Kb are occupied by the current program and another 96 Kb are free for future expansion.

You are now the owner of a two-processor chess system. Analyst communicates with Leonardo's 6301Y processor via the parallel OSA interface (the serial one is used to connect to printers and Personal Computers). Thus the Leonardo + Analyst system provides 112 Kb of memory, expandable to a total of 216 Kb! And of course Leonardo's OSA Link opens the way to Personal Computers and opportunities for expansion using disk storage.

Installation

The Analyst Module will not operate with batteries alone: the mains adapter must be connected. It is recommended that the batteries are left installed in the Leonardo even when using the adapter. This will prevent loss of stored games in the case of a power supply interruption.

Read the Leonardo Owner's Manual Section 8.2 "The mains adapter" to learn how to connect it.

Only insert or remove the module when Leonardo is stopped, or you may damage the circuit.

To install the Module follow the sequence in figures A to E. Take particular care to slide the module into the slots provided. Ensure that it is pushed home firmly (figure. D).

Turn on Leonardo by pressing **GO**. If you have installed it correctly, the "Module" light will turn on.

Remarks

1. The Analyst Module can only be used with Leonardo's adapter, as it draws power from it. If batteries only are used to power Leonardo with the Module in, then Leonardo will operate without recognising the presence of the Module. However this is not recommended as it shortens battery life by about 50%.

- Once you press **STOP** (with the Module in), you should wait for at least 15 seconds before pressing **GO**.
- The adapter should only be plugged in or removed when Leonardo is **STOPped**. If the adapter is accidentally disconnected when playing on one of the Module's levels, Leonardo will change to level A1 on its next move. "The Module" light will turn off. If the computer is **STOPped** and adapter re-plugged in, Leonardo will revert to the Module's previous level.

Setting levels of skill

The installation of the Analyst Module does not prevent you from playing any of the levels available in Leonardo's original program. It does however offer you additional levels. These levels are E1 to G8.

Casual

level	Average response time
E1	5 seconds per move
E2	15 seconds per move
E3	30 seconds per move
E4	1 minute per move
E5	2 minutes per move
E6	3 minutes per move
E7	6 minutes per move

Handicap

level	Average response time
E8	1 second per move

Tournament levels

	Description	Time control
F1	Club tournament	30 moves in 30 min., then 30 moves per 30 min.
F2	European Club tournament	35 moves in 90 min., rest of the moves in 15 min
F3	International tournament standard	40 moves in 2 hrs., then 20 moves per hr.
F4	Slow tournament	45 moves in 2 hrs., then 23 moves per hr.
F5	U.S. Open tournament	50 moves in 2.5 hrs., then 20 moves per hr.
F6	Fast tournament	60 moves in 1 hr., then 30 moves in 30 min.
F7	Grand Master tournament	40 moves in 2.5 hrs., then 16 moves in 1 hr.
	Infinite level	
F8	Correspondence chess and analysis	Computer only makes a move when interrupted (press PLAY)

"All the moves" games:

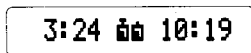
G1	5 minutes for the entire game (Blitz chess)
G2	7 minutes for the entire game
G3	10 minutes for the entire game
G4	15 minutes for the entire game
G5	30 minutes for the entire game
G6	45 minutes for the entire game
G7	60 minutes for the entire game
G8	90 minutes for the entire game

The Analyst display

The Analyst Module has a built-in 16-digit LCD display that offers you a wealth of information during the game. You can see the time both sides have spent, the time left, the moves the computer is thinking about, the continuation it anticipates, its evaluation of the position, the depth of its search, and the number of moves it has examined. The display also helps you to set levels, verify the board position, correct mistakes and enter problem positions.

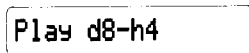
Display during a normal game

When you are playing a game against the computer you normally see the time each side has used up so far, e.g.



The above display means that White has used 3 minutes 24 seconds for all his moves so far, and that Black has used 10 minutes 19 seconds. As soon as 60 minutes are exceeded the display switches to hours and minutes, and a "h" replaces the colon. The little picture of a chess clock (in the middle of the display) with the left button raised means that White's clock is running.

When the computer makes a move the FROM and TO square are shown in the display:



If you make an incorrect move or upset the pieces the computer will help you to correct the board position:



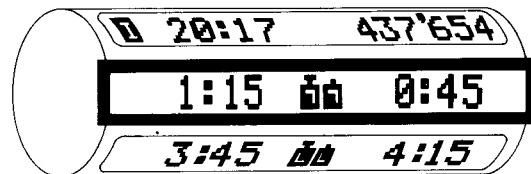
= remove the piece on a2



= put a white knight on a3

The special info display

Pressing the keys **FUNCTION, INFO** during a normal game against the computer puts you into a special "Info mode" in which a wealth of further information becomes available. There are five Info "screens" which are each activated by pressing the same key combination (**FUNCTION, INFO**). In each screen an white-on-black "I" to the left of the display indicates that you are in Info mode. After the final screen you return to the standard time display described above.



FUNCTION, INFO causes the computer to cycle through the display.

Here are the five Info screens that can be activated by pressing **FUNCTION, INFO**

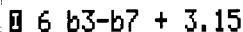


1. Countdown clocks. These indicate the time left for each side. This is only indicated on levels where it is meaningful, i.e. when a certain number of moves must be played in a given time (e.g. Levels F1 to F7, G1 to G8). Again, a colon between the digits means that minutes and seconds are being displayed, a "h" indicates hours and minutes. Note that the clocks in the middle are slightly different to the normal countup display.



2. The principal variation. The computer shows you which moves it expects and, at the end of the sequence, the depth of search and its evaluation of the position (each of these items is discussed in detail below). When the computer is thinking the principal variation will keep changing as it finds better moves.

If the display is too fast for you to follow you can "freeze" it by pressing **+** or **-**. Thus you can make the computer display only the first two moves of the principal variation, or just the depth and evaluation.



3. Depth of search + next move + evaluation. When the computer is thinking you will see the move it currently considers the best (i.e. the first move of the principal variation), or if it is your turn the move it expects you to play. "6" means that the computer has looked at all possible continuations to a depth of six ply (though it may have looked at some variations much more deeply).

You can see the depth of the search and the computer's evaluation of the position. The latter is expressed in the equivalent of pawns, with a plus score indicating that White is ahead and a minus that Black is better. Thus the example above shows that after a six ply search the computer thinks that White is better by the equivalent of 3.15 pawns. If the evaluation displays 99.98 to 99.90 then the computer has seen a forced mate.



4. Time spent on current move + number of positions examined. In the above example the computer has been thinking for 20 min 17 sec and has looked at almost half a million positions.

Pressing **FUNCTION, INFO** once more returns you to the standard screen (time for both sides). Once chosen any of the above screens will remain in the display until you change it with **FUNCTION, INFO**.

Display in Analysis mode

Pressing **ANALYSIS** will give you an Analysis display (indicated by a white-on-black "A" to the left). You will see the last move played in the current game, e.g.:

A10. ♖b3xb7

You can press + or - to scroll through the entire game without moving the pieces on the board! If you are retracting or replaying moves the move number will flash.

Note that moves are displayed in full algebraic notation with capture, check, and en passant signs included, e.g.:

A17... ♜c4xd3ep+#

(In his 17th move Black's pawn on c4 captured on d3 en passant and at the same time White was mated).

When using the computer as a referee you may want to see the clocks in Analysis mode. Press **FUNCTION, INFO** once for normal clocks, and again for countdown clocks, and once more to return to the move display.

Levels of skill

When setting levels you will find some very useful information on the time controls in the LCD display, most of which is self-explaining. Here are some examples:

1/0:02

Casual: average 2 seconds a move

99/0h05

Blitz: all your moves in 5 minutes

1/99h99

Infinite: computes until you interrupt it

Problem

Problem- solving level

Handicap 3

For beginners

40/2h00 20/1h00

Each player is expected to make 40 moves in 2 hours and 20 moves in each hour after that.

35/1h30 99/0h15

35 moves in 1 1/2 hours and the rest of the game in 15 minutes.

Position verification and correction

When you press a piece key to verify the board position the piece type and position is also shown in the LCD display. Use this function to acquaint yourself with the different piece symbols in the display.



Verify ♟b1

Setting up a position

When you press **SET UP** you will see "Setup" in the display, indicating you are in Set up mode. Whenever you enter a piece (as described in the Leonardo manual) the piece type and its position on the board are shown in the display.



Setup ♟e1

User-programmable library

All library functions are additionally supported by the LCD display. You can always tell which "bank" and "slot" is being addressed. A flashing display indicates that the slot is empty, a steady display that there is already a game stored there.



Library ♟a1

Technical Specifications

Processor	65C02
Processor frequency	4,6 or 8 MHz
Total memory space	176 Kb
Installed RAM	16 Kb
Installed ROM	64 Kb
Expansion memory space	96 Kb
Current	70 mA/9V
Power	0.63 W
Weight	0.5 Kg

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