C O N C H E S S

THE CONTEMPORARY RANGE OF CHESS COMPUTERS

TECHNICAL GUIDE

(For more serious chess players)

INDEX

LIBRARY CARTRIDGE

WORLD CHAMPION CARTRIDGES

C O N C H E S S

THE CONTEMPORARY RANGE OF CHESS COMPUTERS

CONCHESS LIBRARY CARTRIDGE (LØ)

TECHNICAL GUIDE

1. INTRODUCTION

The Library cartridge (LØ) contains a completely new opening library and a program for randomly selecting moves from the library. When the Library cartridge is used, the old opening library within the standard program cartridge (AØ) is automatically "disconnected" by program.

2. SPECIFICATIONS

A) RANDOM SELECTION. The most important new feature provided by the LØ cartridge is that the computer will now select at random from a great variety of alternative library moves. There are often alternative moves for the computer not only at the first or second move, but also considerably later in the opening line chosen. The first alternative (as defined in the library) is selected more often than the second alternative, which in turn is played more frequently than the third one etc. In other words the more popular (or arguably better) lines are chosen more often but not to the exclusion of the less frequently used lines. A very varied and interesting game is provided as a result.

B) LARGER OPENING BOOK. The new LØ library is much larger than the old opening (AØ) book. It contains about 3,000 opening moves. The opening lines are selected mainly from popular opening literature. Thus a great many of the openings commonly played by humans are now known and played by the computer. This will greatly increase the enjoyment for the owner! In addition, a few special openings have been carefully developed and tested to suit the computer's style of play.

C) GOOD AND BAD MOVES. In the LØ library, each move is defined as "STRONG", "OK", or "WEAK". The computer will never select a WEAK move. Furthermore, it will always prefer a STRONG move, if any, to an OK move. When a WEAK move is played by the opponent, however, the computer will recognise it and know what to play.

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2. (continued)

D) TRANSPOSITIONS. A delightful feature is the complete handling of transpositions. Thus, if an opening position is reached by any other sequence of moves than the one defined in the library, it will still be recognised by the library system, and a library move will be selected. Also the book contains moves for the computer to sometimes transpose into another opening, challenging the opponent (human or computer!) to recognise the transposition.

E) DICE FUNCTION. The "dice" or alternative move function really comes into its own and may now be used by the player to vary library moves chosen.

3. OPENING LINES

Ruy Lopez
Four Knight's Game
Two Knight's Defence
Guioco Piano
Scotch Game
Ponziani's Opening
Petrov's Defence
Philidor's Defence
King's Gambit
Vienna Game
Bishop's Opening
Centre Game
Sicilian Defence
Caro-Kann Defence
French Defence
Alekhin's Defence
Centre Counter
Nimzowitsch Defence
Pirc Defence
Queen's Gambit
Nimzowitsch-Indian Defence
Queen's Indian Defence
Bogolyubov Defence
Gruenfeld Defence
King's Indian Defence
Old Indian Defence
Modern Benoni Defence
Dutch Defence
Franco-Indian
English Opening
Reti Opening
Dunst Opening

These openings will be played by the computer. In addition, quite a few openings are known by the computer when played by the opponent.

4. INSTALLATION

The CONCHESS library Cartridge (LØ) fits into any CONCHESS board together with the standard chess program cartridge (AØ). Both cartridges should be placed in the slots in the bottom of the board before connecting power. One should never remove any cartridge without first disconnecting power. The cartridges may be placed in either slot. (No physical modification is required to the standard program cartridge AØ).

5. OTHER POINTS

The mate search function is more efficient if only the AØ cartridge is loaded. There is no change in efficiency for any other function when LØ is used.

C O N C H E S S

THE CONTEMPORARY RANGE OF

CHESS COMPUTERS

CONCHESS WORLD CHAMPION CARTRIDGES

TECHNICAL GUIDE

1. SPECIFICATIONS

1.1. SOFTWARE

The new World Champion Program (Princhess - more recent versions have recently been renamed Plymate)

This new CONCHESS program has been completely rewritten by programmer Ulf Rathsman. It contains all the facilities offered by the current program which is contained in the standard cartridge (AØ). It also contains the same extended library of openings which is available in the Library Cartridge (LØ). Additionally, it contains some enhancements as follows:

1) Increased depth of search by one ply for each practice level
2) Some greater flexibility such that all facilities available at practice levels are now available at tournament levels, eg. change sides
3) Announcement of draws in the following situations:
   * stalemate
   * non-mating material only remaining
   * threefold repetition of moves
   * 50 moves rule
4) Finds mate in 7 rather than 5 in solving composed problems. Whilst some other chess computers claim to be able to solve up to mate in 12 these claims may be seen to be quite unrealistic if such problems take months to solve.

The really important thing about the new World Champion program is not so much the enhancements but the performance in terms of playing strength. The program itself is written in an exceptionally powerful and code efficient way. According to J.V. Louwman of Holland, one of the top two or three leading authorities on chess computers, "CONCHESS analyses and searches more efficiently and faster than any other chess computer running at comparable processor speeds". It follows then that CONCHESS is likely to play to a significantly better standard than its rivals at tournament play. At blitz and problem solving CONCHESS should prove devastatingly stronger than the competition. Lastly, in the end game, an area which chess computers are notoriously less strong, the depth of 'look ahead' results in a much improved end game technique.

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1.2 HARDWARE

The World Champion program is available in two different hardware options:

A. Add-on cartridge (A1) (contains PRINCHESS version)

This cartridge may be added on to the existing cartridge (AØ) and uses the vacant second cartridge slot beneath the board. The existing cartridge (AØ) requires returning to the supplier for a very simple, but permanent, alteration which allows it to work in tandem with the Add-on cartridge (A1). (The alteration means that the existing cartridge (AØ) can no longer be run by itself).

The Add-on cartridge (A1) currently contains the PRINCHESS version of the World Champion program. It runs on 2mhz and is ROM based which means the cartridge itself is not updateable except by changing the ROM. The latter facility may be available when production of new exchangeable ROMs is made in conjunction with a new production run of ROM based cartridges. Exchanging ROMs is likely to cost the owner about £35-£40.

The Add-on cartridge is considerably cheaper than the Replacement versions and provides a relatively low cost way of making the World Champion program available, with updates possible on a periodic basis. We think that the Add-on cartridge is the most practical buy for the majority of prospective World Champion program purchasers.

B. Replacement cartridge (A2) (contains PLYMATE version)

This version works independently of the existing CONCHESS cartridge (AØ). The Replacement cartridge (A2) is available in three versions each with an identical program but running at different speeds: 2mhz, 5.5mhz, 8mhz. The principle being the faster the speed the stronger the program becomes.

The Replacement cartridge also represents a technological breakthrough in that it is EPROM based. This means that the owner can return his cartridge at any time for physical updating with the latest version of the program for a nominal cost - £35 (plus £2.25 post and packing).

CONCHESS has always been totally upgradeable via its replacement cartridge philosophy but now the cartridge itself is updateable at any time via its EPROM technology or periodically via its ROM technology. The investment of the owner is thus doubly protected which is an excellent selling point.

2. PERFORMANCE ANALYSIS

2.1. On the basis of recent research in Sweden, Holland and our own evaluations we estimate the following gradings for our current range of cartridges:

		Approx.ELO	Approx.BCF
(A2/8)	CONCHESS PLYMATE 8.0mhz	2101	188
(A2/5.5)	CONCHESS PLYMATE 5.5mhz	2040	180
(A2/2)	CONCHESS PLYMATE 2.0mhz	1926	166
(A1/2)	CONCHESS PRINCHESS 2.0mhz	1902	163

Ratings of previously issued cartridges would be as follows:

(A2/8)	CONCHESS PRINCHESS 8.0mhz	2041	180
(A2/6)	CONCHESS PRINCHESS 6.0mhz	1996	175
(A2/4)	CONCHESS PRINCHESS 4.0mhz	1951	169
(A2/6)	CONCHESS PLYMATE* 6.0mhz	2040	180
(AØ)	CONCHESS (standard) 2.0mhz	1750	144

* Please note an earlier version of PLYMATE was used in the 6.0mhz.

Chess computer performance comparisons tend to be slightly suspect because:

i) They are generally based on computer vs computer comparisons rather than human being vs computer.

ii) They have always, almost since time immemorial, used the accredited rating of 1770 ELO for the Sensory 9 as a relative base for all future comparisons.

In our view more realistic ratings against human beings could be obtained by deducting 50 ELO or 6 BCF points throughout.

Approximate ratings relative to human chess players are as follows:

	ELO	BCF
Average Club Player	1600-1750	125-144
Strong Club Player	1750-1950	145-169
Top club Player / Junior County Player	1950-2100	170-187
Strong County Player / Local Master	2100-2300	188-213
International Master	2300-2500	213-238
Grand Master	2500-2700	238-262
World Champion	2700+	263+

2.2. Problem Solving

For composed problem solving the new CONCHESS World Champion program is still more impressive. Initial tests have shown that even the 2mhz version is likely to be able to better almost anything else on the market, the 5.5mhz and 8.0mhz versions definitely do. This is because the new program has been written in a very code efficient way. One striking example we have made is that in a comparison between the Scisys Mark Vi, a machine with a very good reputation hitherto in problem solving, the following figures were obtained for solving a complex mate in 6:

Cont/d....

Scisys Mark VI	306 hours	33 minutes	24 seconds
CONCHESS 8mhz		17 minutes	40 seconds
CONCHESS 5.5mhz		25 minutes	42 seconds
CONCHESS 2mhz	1 hour	10 minutes	40 seconds

The CONCHESS 5.5mhz was 715 times faster than the Scisys Mark VI! The CONCHESS 2mhz which works at approximately similar speeds to the Scisys Mark VI was 260 times faster - an amazing tribute to the programmer, Ulf Rathsman.

2.3. Blitz or Lightning Chess

Again because of its exceptionally efficient programming CONCHESS PRINCHESS and PLYMATE are not only relatively stronger at blitz than most other chess computers but they are also very strong against human beings. J.V. Louwman stated two years ago that the "CONCHESS PRINCHESS 6mhz is without any doubt the strongest chess computer at blitz in the world and is proving a match for players of 2300 ELO".

We list below some interesting results obtained in Southern Europe:

CONCHESS PRINCHESS 6mhz	2 v 0	R. Angelov (BLG)	ELO 2275
CONCHESS PRINCHESS 6mhz	2 v 0	R. Degerman (SVE)	ELO 2340
CONCHESS PRINCHESS 6mhz	0 v 2	Z.Z. Ljubisavljevic (JUG)	ELO 2400
CONCHESS PRINCHESS 6mhz	2 v 1	E. Magerramov (URS)	ELO 2450
CONCHESS PRINCHESS 6mhz	2 v 0	F. Bruno (ITA)	ELO 2340

2.4. Tournament Results (Computer Chess)

1984 - CONCHESS PRINCHESS - Joint Winner
- 4th World Microcomputer Chess Championships

1985 - CONCHESS PRINCHESS - Top Commercial model
- 5th World Microcomputer Chess Championships

1986 - CONCHESS PLYMATE - Joint top microcomputer
- 5th World Computer Chess Championships proper

- CONCHESS PLYMATE finished 5= behind four large multi-million pound mainframe computers.

1987 - CONCHESS PLYMATE - 3rd in Experimental Section with 4 out of 7. (NB Lost a won game against the winner Psion - same program as Mephisto Roma).

The Commercial Section only had two entries, Mephisto Roma and CXG which Mephisto won comfortably.

2.5. Competitive Comparisons

It is not our policy to 'knock' the competition. We would rather sell our products on their undeniable merits as opposed to trying to attempt to sell them by highlighting the weaknesses of other suppliers' machines.

Nevertheless we feel we would not be doing CONCHESS complete justice if we did not make the following points:

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CONCHESS - The cheapest UPDATEABLE computer

The only other updateable system available starts at £286 upwards. CONCHESS has a truly modular range of program cartridges which allow the owner to upgrade at will by addition to or replacement of his existing system. The owner's investment is therefore fully protected as he can always keep up to date with the state of the art - contrast this approach with the 'trap' owners of most other models have fallen into whereby having purchased the latest 'rave review' chess computer they find it superceded only a year later by a new GLS version and the subsequent year by an SRi version from the same supplier.

CONCHESS - an incredibly inexpensive AUTO-SENSORY computer

The next cheapest auto-sensory system regularly available starts at £286 - over 150% the price of an Escorter. The beauty of an auto-sensory system is that the player just picks up a piece and moves it in the normal chess way. There is no tedious pushing down of pieces or pegs, no tiresome keyboards. Auto-sensory boards also employ an LED light on each square to indicate the move requested - far simpler than struggling with the co-ordinate system used on non auto-sensory boards.

CONCHESS - outstanding DESIGN with elegant rosewood boards

It is difficult to see how one could improve on the traditionally designed rosewood boards of CONCHESS which we think are without peer. In addition the next cheapest wooden model regularly available on the market starts at £382 - almost double the price of the CONCHESS Ambassador.

CONCHESS - a leader in PLAYING STRENGTH

The CONCHESS record speaks for itself. See the tournament results in Section 2.4 above. CONCHESS with its range of add-on and replacement World Champion cartridges will challenge any player up to BCF 185 (ELO 2080) at tournament play and at least up to BCF 212 (ELO 2300) at blitz chess.

2.6. QUESTIONS AND ANSWERS

a) Q. Is there any buy back on the existing AØ cartridge?

A. No. Neither we, nor our dealers, are in the second-hand cartridge business but perhaps more importantly we would not want the market to think we had bought second-hand cartridges from one person only to sell them as new to another person.

We recommend, anyway, that the owner keeps the AØ cartridge as:

i) possible use by other members of his family as it is less strong than the World Champion cartridge.

ii) part of his set of CONCHESS cartridges.

iii) standby.

b) Q. The World Champion cartridges are expensive, the EPROM versions in particular.

A. Yes, but they are still a lot cheaper than having to buy a whole new chess computer to keep abreast of the state of the art as for example owners of the Constellation, the Sensory 9, the Excellence and the Forte have found out recently.

It is true that the EPROM versions are more expensive but remember they have the great benefit of being updateable in themselves at a relatively trivial cost - circa £35.

c) Q. Doesn't the World Champion cartridge make my recent Library cartridge purchase redundant?

A. We have always said at some stage we would bring out a replacement program cartridge. Anyway, are you sure you really are one of those select few who need a very strong program? If you are, and already own a library cartridge, we advise you to buy an EPROM cartridge if you can afford it, and keep your two existing cartridges AØ and LØ as part of your 'CONCHESS set'.

d) Q. Is there any buy back if I buy the 2mhz EPROM cartridge but later decide I really would like the 5.5 or 8mhz version.

A. No, for the same reasons as 2a) above. However it is likely that later versions of the World Champion program will be stronger anyway and these will be available to you via EPROM updating on your existing 2mhz cartridge.

C O N C H E S S

THE CONTEMPORARY RANGE OF
CHESS COMPUTERS
WORLD CHAMPION CARTRIDGES
OPERATING GUIDE
PLYMATE VERSION (GLASGOW PLUS)

A. INSTALLATION

1. Replacement World Champion Cartridges (A2)

(2, 5.5 or 8mhz EPROM versions)

In each case the existing cartridge(s) should be removed and the new cartridge (A2) installed in its or their place. The cartridge is then ready for immediate use in the normal way. Similarly, the previously installed cartridge(s) may continue to be used by removing the A2 cartridge and installing the previous system.

2. All cartridges in your CONCHESS chess computer should be supported in place by the small foam packs as supplied. (Further packs may be obtained from Contemporary Chess Computers for 50p to cover postage).

B. INSTRUCTION BOOK ADDITIONS

The new World Champion program contains the following enhancements:

1. Practice Levels

P1 as was is now beginners level (searches to 2-ply)
P2 as was is now blitz level - 60 moves/5 minutes or 5 secs/move
P3 as was is now tournament level - 60 moves/10 minutes or 10 secs/move
P4 as was is now tournament level - 60 moves/20 minutes or 20 secs/move
P5 as was is now tournament level - 60 moves/30 minutes or 30 secs/move

Ply search times are always variable according to the complexity of the position at the time. The timings in the instruction book give an approximate idea however.

2. Tournament Level Options

These have been made more flexible and now all the options that were available at practice levels are also available at tournament levels.

eg: take back moves
terminate thinking
change sides
change levels etc.

The use of any of these facilities (excepting terminate thinking) will reset the CONCHESS internal timer to start of game, as also will use of alternative move, position set up and exit from referee mode.

T1 as was is now tournament level - 30 moves/30 minutes or 1 min/move
T2 as was is now tournament level - 30 moves/60 minutes or 2 min/move
T3 as was is now tournament level - 40 moves/2 hours or 3 min/move
T4 as was is now tournament level - 40 moves/2½ hours or 3½ min/move
T5 as was is now tournament level - 24 moves/4 hours or 10 min/move

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3. End of Game Displays

End of game is indicated by use of the STOP light as before but with the following modifications:

steady light for win/loss (by mate or loss on time)

blinking light for a draw in conjunction with additional blinking lights as follows:

Pawn	(1)	- for stalemate
Knight	(2)	- for 'non mating material' (eg. K + B / N vs K)
Bishop	(3)	- for threefold repetition
Queen	(5)	- for 50 moves rule

4. Opening Library

This is identical in content to the combination of the existing cartridge (AØ) plus Library Cartridge (LØ). One enhancement is that a Library position is recognised even when set up by the problem of position setting routines (via function - see instruction book 5.1)

5. Hint Button (?)

The ability to see what the computer is thinking is only available when the computer has come out of its library and started to think.

6. Mate Search

a) Set-up. CONCHESS will now find mate in up to 12 moves. As an additional development it is now possible to inform the computer in advance as to how many moves anticipated, et. four for mate in four. This is done by setting up mate search level as per instruction manual but prior to pressing the STOP button place a piece temporarily on one square and then remove it (the light on the square will remain lit) as follows:

A1 = Mate in 1 ..... A8 = Mate in 8
B1 = Mate in 9 ..... B4 = Mate in 12

Obviously if you do not know how many moves exactly are required it is still possible to follow the mate search routine exactly as outlined in the instruction manual.

b) Announcement of mate. CONCHESS will now announce mate up to twelve moves ahead as follows:

i) The normal checkmate signals will be given and the first move of the solution will be indicated on the board.

plus

ii) The lights on the left hand side of the board will also indicate the impending mate for up to mate in ten as follows:

Light 1 blinking	=	Mate in 1
Light 1 steady	=	Mate in 2
.....		
Light 5 blinking	=	Mate in 9
Light 5 steady	=	Mate in 10

c) Failure to find mate. If CONCHESS should not find mate in the number of moves requested it will bleep twice and flash the number one button on the right. The user may then reset to a new number of moves by pressing first the number 7 button on the right and then activating the appropriate square (A1-B4) followed by the STOP button. CONCHESS will then automatically start searching a solution in the new number of moves.

Cont/d....

d) Alternative solutions (or cooks). The alternative move button may be used to detect any alternative solutions in the same number of moves as that already found. CONCHESS can find up to a maximum of seven alternative solutions. If the user requests more and if there are more than seven then CONCHESS repeats the seventh solution. If there are no more CONCHESS will announce this via two bleeps as previously explained.