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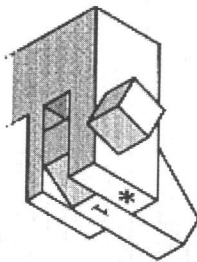
Good luck with your new puzzle. We believe that it will be the most interesting and challenging puzzle you have ever tried.

represents a unique challenge.

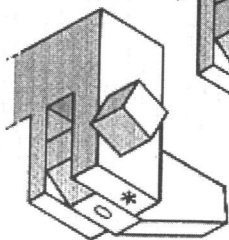
The simplest combination is "1111", for which only eight bars must be switched. The longest sequence is the "1110" combination, which takes 170 switches to free the carriage. This is a binary Gray code sequence. As you will find, other combinations can be more or less difficult, and each of them

Figure 3

-1" Position



-0" Position



1000	1000	1000
0000	0001	0010
0010	0101	0110
0011	0101	0111
1000	1001	1010
1001	1001	1011
1110	1110	1111
1111	1111	1111

Each key setting creates a different puzzle, requiring a different sequence of moves. For correct operation, the blocking keys should not be changed while solving a given puzzle.

Depending on the position of the blocking keys, the puzzle can be set in any of the following combinations:

This adjustment is shown in Figure 3. To adjust the keys, remove the blocking key pin at the side of the main block. The keys can now rotate to either of two settings:

with the "1" or the "0" set on the top face, in the plane of the "0" and "1" settings.

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SIXTEEN PUZZLES

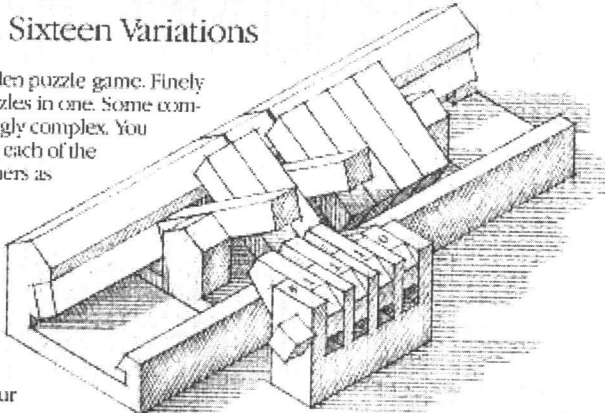
THE HEXADECIMAL PUZZLE™



An Advanced Mathematical Puzzle With Sixteen Variations

Congratulations on owning this fascinating and intriguing wooden puzzle game. Finely crafted, the Hexadecimal Puzzle actually consists of sixteen puzzles in one. Some combinations are relatively straightforward, and some are mystifyingly complex. You and your family or friends will find hours of enjoyment solving each of the combinations and then sitting back and watching it tantalize others as they work their way through the various solutions.

The object of the Hexadecimal Puzzle is to remove the sliding carriage from the stationary base. It is a mathematical puzzle, based on binary arithmetic. There is no trick to solving it. Although we have included a "helpful hint" on a separate page, the best solution may be simply to think through each combination, and work the switching bars back and forth until the sliding carriage is freed from the base and the puzzle is solved. For the strong of heart, read the directions, set aside our hints, and have at it. The fun is in the figuring!



Patent # 3637216

THE HEXADECIMAL PUZZLE™

Your Hexadecimal puzzle consists of a sliding carriage and a stationary base. The carriage is fitted with eight rectangular switching bars, which can pivot on their centers to angle in either of two directions. The base, which holds the carriage during the puzzle's operation, is fitted with a main block piece containing four blocking keys. These components are illustrated in Figure 1.

As the puzzle is started, the carriage is set inside the puzzle base. The eight switching bars should slant away from the main block, so the ends of the bars can tuck under the gate, as the puzzle is set in Figure 1. In this position, the carriage is trapped inside the base by the exit block.

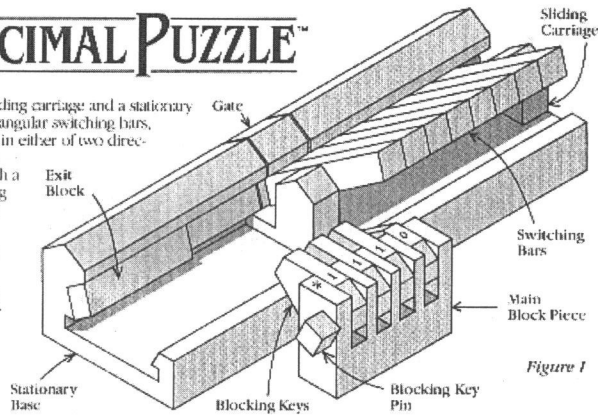


Figure 1

To solve the puzzle, each of the switching bars must be switched to the opposite setting of that shown in Figure 2, so they can move freely past the exit block. This is done by pushing the main block piece into the base, which will open the gate and allow one bar at a time to switch positions (shown in Figure 2). When all the bars have been switched, the carriage is free of the exit block and can slide out of the base.

The gate, however, can be opened only when the switching bars facing the blocking keys match the position of the keys. Thus, slide bars obstructing the blocking keys must first be switched to form a pattern that matches the key pattern. As you will soon learn, switching bars to switch other bars to get to the bar you want to switch can be a frustrating experience. The solution is to find a switching sequence of the bars through the gate which places all bars free of the exit block.

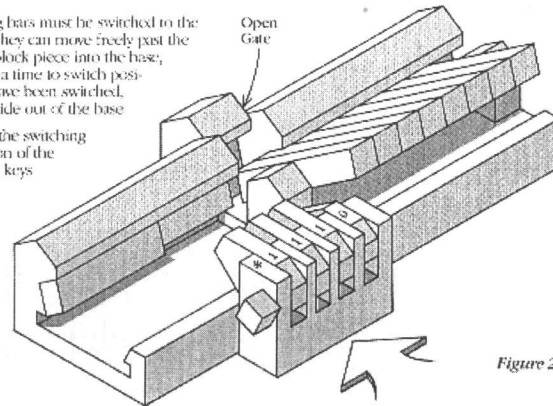


Figure 2

Helpful Hints for your Hexadecimal Puzzle

(Please Read Only When Frustrated)

The essential concept of the puzzle is to concentrate on solving the switching bars furthest from the main block, even though the puzzle constrains most of your actions to the bars nearest the block. Progress made on the near bars must give way to progress on the farther bars, because the relationship between switching bars and their opposing blocking keys changes with each puzzle move. With the Hexadecimal puzzle, you have to lose some to win some.

After the eighth bar is switched, of course, you are left with a new switching sequence to solve, which now has seven bars which may or may not have to be switched, instead of eight. The process explained above must be repeated, switching the seventh bar to the open position, and then the sixth, etc., until each of the eight bars have been solved in order.

Fortunately, each succeeding bar is easier than the last, because fewer remaining bars get in the way. When only the second and first bars are left, you are almost out of the woods. Out of the woods, that is, until you realize that the process must be reversed to get the carriage back on the base for the next would be puzzle solver to take his or her turn!

One final suggestion. Although resetting the puzzle can be as challenging as solving it, once the puzzle has been solved it is sometimes handy to readjust all the keys to the "1" position. The bars can then be moved back into starting position in order, and the keys repositioned in any arrangement for the next puzzle sequence.

This is a helpful hint we can share with those who might welcome a little assistance in overcoming the puzzle's challenges. As you start, try to think of each blocking key combination as eight separate puzzles, one puzzle for each switching bar, starting with the eighth bar (furthest from the exit block). Focus first on how to switch that eighth bar. To get to it and move it, you must first set the other seven slide bars in exactly the right combination in relation to the blocking key pattern and the exit block to allow the gate to open for the eighth bar. If even one of the first seven bars is switched in the wrong direction, the last bar cannot reach the gate, or the gate cannot be opened to switch this bar.

How should you set the first seven bars? Focus next on the seventh bar. In its current position, would it be blocked by the blocking key which it would oppose when the eighth bar is in the gate to be switched? If so, it must be switched before the eighth bar can be switched.

If switching the seventh bar is necessary to switch the eighth bar, focus next on the sixth bar. Would the sixth bar be blocked by its opposite blocking key when the seventh bar is in the gate? If so, it must be switched to switch the seventh bar to switch the eighth bar. Is the fifth bar in proper position when the sixth would be in the gate? The fourth? and on and on.

from Whitelill

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