puzzle

by John Shepler

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F  L  I  P  F  L  O  P  R  A  S  F
D  R  E  T  S  I  G  E  R  E  L  A
R  N  L  N  A  N  D  L  V  I  B  N
O  T  G  G  N  I  K  I  P  S  E  D
T  E  A  O  C  A  R  D  P  O  T  M
A  R  T  N  C  I  E  I  S  L  A  E
R  C  E  E  I  C  F  R  T  O  T  M
B  R  D  D  G  K  F  E  U  M  S  O
I  E  I  A  O  J  U  V  O  C  I  R
V  T  N  C  L  C  B  I  N  A  R  Y
I  N  V  E  R  T  E  R  A  I  T  R
T  U  E  D  L  B  C  D  F  S  M  N
L  O  R  O  T  A  R  A  P  M  O  C
U  C  S  S  E  L  E  C  N  U  O  B
M  O  N  O  S  T  A  B  L  E  R  V
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TTL PUZZLE WORD LIST

1. MULTIVIBRATOR
2. MONOSTABLE
3. COUNTER
4. BOUNCELESS
5. COMPARATOR
6. BINARY
7. MSI
8. FANOUT
9. BUFFER
10. DRIVER
11. FLIPFLOP
12. REGISTER
13. NAND
14. TRISTATE
15. MEMORY
16. JK
17. LOGIC
18. DECADE
19. BCD
20. INVERTER
21. GATE
22. DESPIKING
23. DIP
24. LSI
25. DECODER
26. AND
27. OR

RULES

1. Find all of the listed words hidden in the Integrated Circuit.
2. All of the words are terms used in TTL logic circuitry.
3. Words are arranged in straight lines in all directions. There are no blank spaces or skipped letters.
4. Good Luck!

Six steps for successful PC soldering

There's no question about it, using a printed circuit board makes circuit construction much, much easier than old-fashioned point to point wiring. But, if you're not careful, you'll find printed circuits also make it a lot easier to create *short* circuits. That's because it's so easy accidentally to leave a solder bridge between two adjacent foil strips.

Another problem you might encounter using printed circuit boards is a false connection—a solder joint that looks good, but is in fact no connection at all. This happens when only the component lead is heated. The solder forms a blob on the lead, which becomes insulated from the copper foil by rosin from the solder's core.

The trick to using printed circuit boards is to do a good job of soldering the component leads to the copper foil. It's really easy to do, if you'll follow these tips and take your time.

■ Use a soldering iron designed for use on printed circuits. These are usually rated at 25 watts and have relatively small tips—perhaps a chisel point about 1/8th-inch wide.

■ Use a top-quality electronic solder, which must be of the rosin core variety. Use the smallest diameter solder you can obtain.
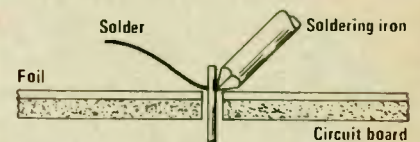
■ Place the soldering iron tip on the copper foil and against the lead to be soldered. Apply the solder to the junction of the foil and lead on the side opposite the soldering iron.
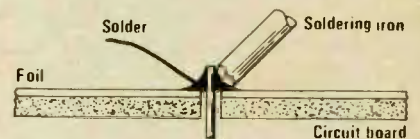
■ When the foil and lead have been heated to the proper temperature by the soldering iron, the solder will *flow* onto the foil and lead like a drop of light oil.

■ Remove the solder and iron. As the solder cools and hardens, it should appear smooth and it will shine.

■ As you remove the soldering iron from the foil, *lift* it away. If you drag it away, you risk making a solder bridge across the gap to the adjacent foil strip.